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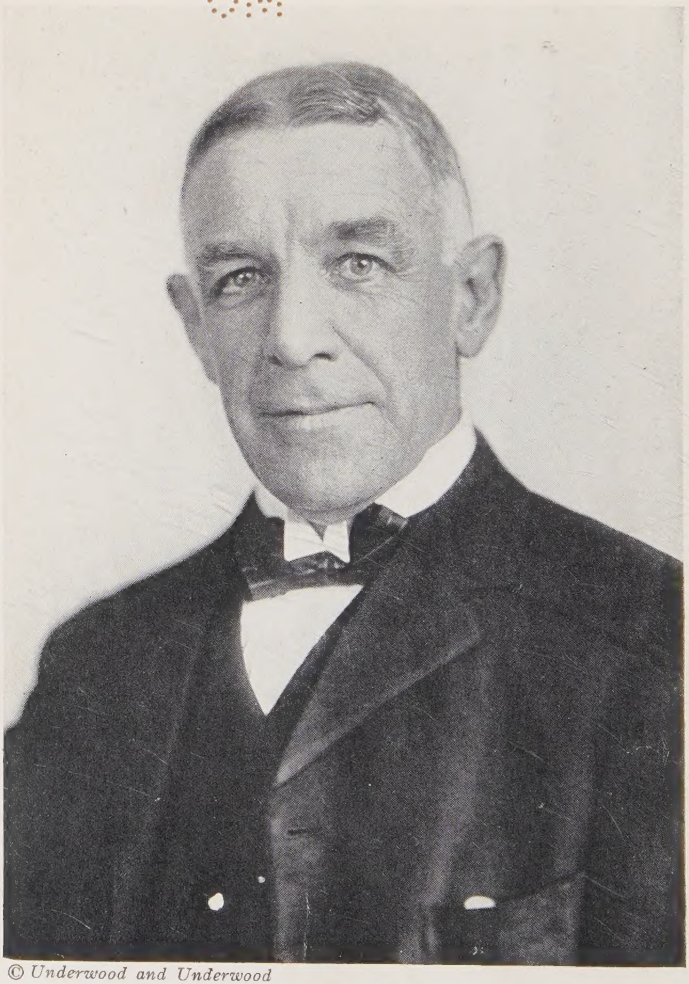

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GEORGE WASHINGTON GOETHALS

OUR FOREIGN-BORN CITIZENS

WHAT THEY HAVE DONE FOR AMERICA

BY

ANNIE E. S. BEARD

ILLUSTRATED

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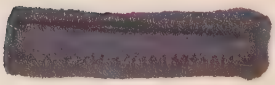

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PUBLISHERS' NOTE

We believe that the author is rendering a double service in this series of life sketches of "Foreign-born Citizens." One service is to the "stranger within our gates" who is too often misunderstood and allowed to remain the stranger; and the other service is to Americans themselves in making them acquainted with the potentialities of the alien, of the right kind.

The author chooses a few typical examples—citizens of foreign birth who have done things—and tells their life stories in brief but highly interesting chapters. Many of these men will not be recognized as foreign, so closely have they entered into, and become identified with things American.

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OUR FOREIGN BORN CITIZENS

"THE FIRST NATURALIST OF HIS TIME"

LOUIS AGASSIZ

"I WISH it may be said of Louis Agassiz that he was the first naturalist of his time, a good citizen, and a good son, beloved of all who knew him." Such was the expression of the life-purpose of a young man at the age of twenty-one, and in every way Jean Louis Rudolphe Agassiz attained the goal he had set before himself.

Switzerland was the land of his birth. His father was a clergyman, his mother the daughter of a physician. They were his only teachers for the first ten years of his life. His love of natural history was early evident. The pet animals he had were not only an amusement and a pleasure, but also a source of information, for he was ever eager to observe their habits. From the fresh-water fish in the Lake of Morat, on the shore of which was his home, he gained the beginnings of the wonderful knowledge of their characteristics which later in life so astonished the audiences to whom he lectured.

At the age of ten he was sent to the boys' school at Bienne, where nine hours of study daily, alternated with intervals for rest and play, kept him busy and happy. At fifteen, when his parents planned for him to enter commercial life he begged for two more years of study, and his request being granted, he went to the college at Lausanne. His uncle, a physician in that city, noting the boy's interest in anatomy, urged that he be allowed to study medicine, and therefore at the end of his college course Louis entered a medical school at Zurich.

Here fortune favored him, for his professor of natural history and physiology gave him the key to his private library and his collection of birds. As Louis was without financial means to purchase books, he made good use of this kindness by spending hours in copying the books he could not otherwise obtain, aided in this by his brother Auguste.

In the spring of 1826 the young student went to the University of Heidelberg. There he was specially interested in the magnificent collection of fossils belonging to Professor Bronn, the paleontologist, which, in 1859, was purchased by the Museum of Comparative Zoölogy at Cambridge, Mass., and Agassiz had the satisfaction of using it in his work with American pupils.

Through a friendship formed at the Univer-

sity of Munich, Agassiz found the first stepping-stone to his later fame. The King of Bavaria had sent on an exploring expedition to Brazil, two naturalists, Von Martius and Spix. They purposed on their return to publish a natural history of Brazil, but Spix, dying before the completion of the plan, Agassiz was asked by Von Martius to prepare the part relating to the fishes. The work was written in Latin, and did much to establish for him a reputation for accurate and thorough research. At that time he was under twenty-two years of age.

An amusing incident of his student life is related by a friend: "Under Agassiz's new style of housekeeping the coffee is made in a machine which is devoted during the day to the soaking of all sorts of creatures for skeletons and in the evening again to the brewing of our tea."

April 3, 1830, Louis Agassiz received the degree of doctor of medicine, having already won that of doctor of philosophy. He was told by the dean that "the faculty congratulate themselves on being able to give a diploma to a young man who has already acquired so honorable a reputation." Seventy-four theses were prepared by Louis in connection with the taking of the medical degree. At twenty-three years of age Louis Agassiz had won unusual honors, but unfortunately they did not furnish him with

sufficient income. He was receiving at that time only forty dollars a month, out of which he was paying twenty-five dollars to the artist who illustrated his books. He expressed regret at not possessing a suitable coat to wear when presenting letters of introduction. At this critical moment, when he feared he should have to give up the studies in which he was becoming famous, to teach in order to earn a living, Von Humboldt sent him a letter of credit for one thousand francs. Through the influence of this friend he obtained a professorship in natural history at Neuchatel, where he helped to build up a museum of natural history, and to make the town a center of scientific activity.

A great trial now came to him, for his eyes, injured by the long strain of microscopic work, compelled him to stop work for several months and live in a darkened room. During this period he practiced the study of fossils by touch, using even the tip of his tongue to get the impression when his fingers were not sufficiently sensitive. He felt sure he could cultivate such delicacy of touch that if eyesight failed him he would not need to abandon his beloved research study. In time, to his great joy the condition of his eyes improved. Von Humboldt wrote. "For mercy's sake, take care of your eyes; they are ours."

Recognition of his scientific ability and offers of coöperation came to him from all over the world. The Wollaston prize of one thousand pounds sterling was bestowed upon him by the Royal Society of London, of which he was later made a member. It aided in continuing the production of his famous book entitled "Researches on the Fossil Fishes," describing over seven hundred species. It took ten years to complete this work. He made a new classification of the whole type of fishes, fossils and living. He was an opponent of the Darwinian theory, believing that development meant development of plan as expressed in structure, not the change from one structure into another. He had learned to know accurately one thousand five hundred species of fishes, and "his studies were to him incontestable proofs of the existence of a Superior Intelligence, whose power alone could have established such an order of things."

The science of conchology had hitherto been based almost wholly upon the study of empty shells. Considering this as superficial, Agassiz adopted the method of obtaining casts from the inner molding of the shells, by which the perfect form of the animal was reproduced. This method is now universally used.

His visit to England at the urgent invitation

of leading men who offered him the use of valuable collections of fishes, brought him both honor and enjoyment. Offers of professorships at Geneva and Lausanne did not tempt him to leave Neuchatel, and the appreciation of the citizens was expressed in a letter of thanks in which he was asked to accept a gift of six thousand francs.

In 1846 he sailed for America, the King of Prussia having given him fifteen thousand francs to pursue investigations in the ichthyology of this country. On his arrival he began a course of lectures at the Lowell Institute, on the "Plan of Creation, especially in the Animal Kingdom." His power as a teacher and his personal charm won his audiences despite his unfamiliarity with the English language, which frequently compelled him to pause till he found the right word. In 1848 political changes in Europe caused his honorable discharge from the service of the King of Prussia, and he accepted the chair of natural history in the Lawrence Scientific School, with a salary of one thousand five hundred dollars. From there he went, in 1851, to the medical college in Charleston, S. C. In May, 1854, an invitation to the University of Zurich, Switzerland, and in 1857 one from the Emperor of France to the chair of paleontology

in the Museum of Natural History in Paris, testified to the desire of European men of science to win him back from America. But he declined both offers, saying he felt the task here would take a lifetime. Despite his twice-repeated refusal, the Emperor bestowed upon him, a few months later, the order of the Legion of Honor. Von Humboldt, writing to George Ticknor with reference to this declination, said: "I have never believed that this illustrious man, who is also a man of warm heart, a noble soul, would accept the generous offers made to him from Paris. I knew that gratitude would keep him in the new country where he finds such an immense territory to explore and such liberal aid in his work."

Public interest in his work was freshly aroused by the following incident. His friend Francis Gray left a legacy of fifty thousand dollars for the establishment of a museum of comparative zoölogy at Cambridge; the State University gave land for a site, and the Massachusetts Legislature granted land to the value of one hundred thousand dollars for buildings, on condition that private subscriptions should supplement the grant. In addition to $75,125 given, Agassiz gave all his collections of the last four years, estimated at ten thousand dollars. Agas-

siz insisted that the museum should not be named for him, although popular wish has invariably called it the Agassiz Museum.

From this time on, his college lectures were open to women as well as men. He had great sympathy with the desire of women for further study. Agassiz believed in teaching his students to learn by observation and comparison. His first lesson was simply one in looking. Left with a single specimen, the pupil was told to use his eyes diligently and report what he found. Agassiz never asked a leading question of the pupil; never pointed out a single feature in the specimen; never prompted an inference or a conclusion.

Previous to this event Professor Agassiz planned a series of volumes entitled "Contributions to the Natural History of the United States." Subscriptions for this work far exceeded his expectations, for 2,100 at twelve dollars a volume were secured before publication was commenced.

The Civil War began, and no American cared more than he did for the preservation of the Union and the institutions which it represents. He urged the founding of a national academy of sciences, and was active in its organization and incorporation by Congress. As an evidence of his faith in the Constitution of the United

States and the justice of her cause, he formally became one of her citizens. Writing to Sir Philip Edgerton, Agassiz says: "I feel I have a debt to pay to my adopted country, and all I can now do is to contribute my share toward maintaining the scientific activity which has been awakened during the last few years."

In 1865 Agassiz planned a trip to Brazil for scientific study, and Nathaniel Thayer, of Boston, offered him six assistants with all expenses paid; the Pacific Mail Steamship Company invited him to take the whole party on their fine steamship, the Colorado, as far as Rio de Janeiro, free of charge, and the Secretary of the United States Navy desired all officers of vessels of war stationed along the coast to give him aid and support. Agassiz wrote: "I seem like the spoiled child of the country, and I hope God will give me strength to repay in devotion to her institutions and to her scientific and intellectual development, all that her citizens have done for me."

With characteristic ardor he pushed a plan of a summer school for teachers for the direct study of nature. John Anderson, of New York, offered to Agassiz a site on the island of Penikese, in Buzzards Bay, with an endowment of fifty thousand dollars for equipment. Again Agassiz refused to have his own name given to the

school, and suggested that of the Anderson School of Natural History. It was opened in June, 1873. From the hundreds of applicants the zoölogist selected thirty men and twenty women. Whittier's poem, "The Prayer of Agassiz," commemorates the opening.

At length the busy, enthusiastic life closed on December 14, 1873, and he was buried at Mount Auburn. The bowlder that marks his grave came from a glacier of the Aar, not far from where his hut stood when he was on one of his exploring expeditions; and the pine which shelters it was sent from his old home in Switzerland. "The land of his birth and the land of his adoption are united at his grave."

A FAMOUS GREEK AMERICAN

MICHAEL ANAGNOS

IT is not possible in these days to live in or near a large city in the United States without becoming aware of the presence of Greeks. The names above the stores and shops, particularly in the more crowded and less prominent streets, indicate how many men from Greece are now among the business men of America. New York and Chicago each have some twenty thousand, while Lowell, Mass., has about eight thousand. In the bigger cities they are mostly in confectionery and fruit stores and in restaurants. But there are also Greek physicians, dentists, lawyers, pharmacists, bankers, and newspaper editors. Greeks have distinguished themselves in the United States Navy service, and as professors in our colleges and seminaries. Wealthy and educated Greeks conduct large commercial houses, among them being the world-famed Ralli Brothers, who own one of the largest in the world.

To one Greek, the son-in-law of Dr. Samuel Gridley Howe and Julia Ward Howe, America

is indebted for his wide service to humanity. As successor to Doctor Howe as head of the Perkins Institution for the Blind, he was indefatigable in furthering the interests of blind people. By them his name will always be gratefully remembered.

He is known in this country by the name Anagnos, but originally it was Michael Anagnostopoulos. He was born November 7, 1837, in a mountain village of Epirus, called Papingo. His father was a hard-working peasant, whose flocks the boy tended, studying meanwhile the lessons given him in the village school. By the advice of his teacher he sought a scholarship in the Zozimaea School in Janina. Through rain and storm he walked for sixteen hours to his destination. The same indomitable courage and determination carried him on until he succeeded in entering the University of Athens. Few students would have persevered to this happy conclusion if, like Michael Anagnos, they had to copy the required text-books by hand because poverty prevented the purchase of them. At the university he earned his way by teaching languages and reading proof. He graduated at the age of twenty-two. He then spent four years in the study of law, although he never practiced it.

Accepting a position on the editorial staff of the *Ethnophylax,* the first daily paper of Athens, he soon became its editor. Political affairs led him into a stormy experience. He opposed the government of King Otho because of its failure to give the people their rights. Arrest and imprisonment followed. In 1886 he espoused the cause of the Cretan revolutionists, but as his fellow editors were not in sympathy with him, he resigned the position of editor.

The active interest of Michael Anagnos in that affair proved to be a lodestar, for it brought him into association with Dr. Samuel Gridley Howe, the husband of that other lover of freedom, Julia Ward Howe. Doctor Howe about this time arrived in Greece to help the Cretans, and soon engaged the young man to be his secretary and assistant in the work of relief. When Doctor Howe returned to America, Mr. Anagnos accompanied him to assist the Cretan committee of New England.

Doctor Howe, who had grown to have a strong liking for the young man, made him teacher of Latin and Greek in the Perkins Institution for the Blind, in Boston, of which he was himself the founder. He also made him private tutor in his own family. In this way the connection began which resulted in an oppor-

tunity for the great work which Mr. Anagnos was destined to do for the sightless of America, and possibly of all the world.

In 1870 he married Julia Romana Howe, who was deeply interested in her father's efforts in behalf of the blind. They spent fifteen happy years together until her death in 1886. The failing health of Doctor Howe, soon after the marriage, put his son-in-law more and more in charge of the affairs of the Perkins Institution, and upon the death of its founder Mr. Anagnos was elected his successor. This was a unique situation, that a native of Turkey and a subject of the kingdom of Greece, although eventually he became a citizen of this country, should be placed at the head of a Boston institution dependent on the liberality of the people of that city and of Massachusetts. But Mr. Anagnos throughout the thirty years of his administration amply justified his election. He set himself to the great task his predecessor had left uncompleted and brought the institution to a state of efficiency that is known and admired on both sides of the Atlantic.

One of his first and most notable acts was the raising of a fund of one hundred thousand dollars for books for the blind and for the establishment of a printing plant. The result was that every

public library in Massachusetts was supplied with books usable by blind people; surely a wonderful boon to those afflicted ones. The kindergarten for blind children under nine years of age, which was founded at Jamaica Plain, was especially dear to him and his wife. He raised another one hundred thousand dollars to make permanent these good works. The training of the blind in self-supporting trades and occupations also received his particular attention.

In his work for the deaf-blind he won world-wide fame, notably in what he accomplished for Helen Keller, Thomas Stringer, and Elizabeth Robin. The case of the first named is too well known to bear repetition here, but that of Thomas Stringer is equally remarkable. In the words of Frank Sanborn: "In the helpless, almost inanimate little lump of clay that was brought to his door, he saw the likeness of a human soul and immediately took measures to bring about its development and unfolding. So the little stranger entered the kindergarten for the blind in 1891; a special teacher was provided for him, and the education of Thomas Stringer had begun. The sightless, voiceless, seemingly hopeless waif has now developed into an intelligent, sturdy, fine-appearing young man. He is strong and hale, and thinks acutely, reasons rationally, judges

accurately, acts promptly, and works diligently. He is honorable, faithful, straightforward, and trustworthy in all his relations."

Beautiful testimony to the influence of Mr. Anagnos was given after his death by one blind graduate of the institution: "His strength comforted our weakness, his firmness overcame our wavering ideas, his power smoothed away our obstacles, his noble unselfishness put to shame our petty differences of opinion, and his untiring devotion led us all to do our little as well as we could. . . . Better than all, he taught us to the best of our ability to be men and women in our own homes."

Although he became a citizen of the United States, Mr. Anagnos always kept a warm interest in his native land and made generous gifts for Greek education. He made one gift of twenty-five thousand dollars toward the support of schools in his birthplace. He did much also for his immigrant countrymen in America. He was president of the Boston Community of Greeks and founder and president of the National Union of Greeks in the United States, the predecessor of the present Pan-Hellenic Union.

In 1906 Mr. Anagnos went to Europe as he had frequently done in the past years. He visited Athens and was present at the Olympic games, and then traveled through Turkey, Ser-

bia, and Roumania. There he suffered from a disease of long standing and died under an operation, June 20, 1906. Memorial services were held both in Boston and Lowell, and the Boston *Evening Herald* of July 16 printed the following tribute from T. T. Timayenis, of that city:

"He was the man who taught the Greeks of America to learn and adopt everything that is good in the American character, the only man whom all Greeks revered and implicitly obeyed; the man who did good for the sake of the good; the man who conceived the idea of establishing a Greek school in Boston; the man who expected every Greek to do his duty toward his adopted country—America."

Expressions of respect and appreciation came from institutions and teachers of the blind all over America. Governor Guild, of Massachusetts, at a memorial service in Tremont Temple, Boston, said: "The name of Michael Anagnos belongs to Greece, the fame of him belongs to the United States; but his service belongs to humanity."

No words can more fitly close our study of this world-worker who, though of foreign birth and education, gave of his best to our country, than those of Bishop Lawrence, on the same occasion:

"We in America are a little jealous, are we not, of the love and loyalty which some of those

who come to us show toward their home and nation? We want them to become fully and completely and suddenly American. Are we right in this? Is it not the fact that a translated tree grows better when with it comes a great clod of its native earth to nourish and support it until its roots are thrust into the new soil? Is it not well that immigrants sustain and nourish the memory of their old traditions and home associations, and was it not one of the fine features of Mr. Anagnos that while he gave himself to the work in this land, he so loved his native people that he both in his life and death gave an endowment and education to them and their children? We are richer for his continued association with his people, and they are richer for the larger conception of life which he gave them. . . . Who would have thought that the young Greek, born in a valley of Epirus, educated in the literature of Greek and other languages, saturated with the philosophy of the university, would have become the sympathetic friend of the little blind children of Puritan Massachusetts, the head of a great New England educational institution, and the man to plead successfully with Yankee legislators for aid in his work? It is interesting to us, for we are receiving from eastern Europe thousands upon thousands of people. We are wondering, sometimes, with dread, what their

influence will be on our American civilization. Granted that the mass of them have not the qualities of the Greek Anagnos, nevertheless the fact that he has lived here and done his work here gives us hope and confidence that from these other thousands may arise those who will make noble contributions to our American life."

THE MAN WHO INTRODUCED US TO THE "BIRDS OF AMERICA"

JOHN JAMES AUDUBON

"THE king of ornithological painters," was the flattering salutation given on October 1, 1828, by the great Italian painter Gerard to John James Audubon, after looking at his wonderful lifesize drawings of the birds of America. Baron Cuvier, a noted Frenchman, spoke of them as "the most splendid monuments which art has erected in honor of ornithology."

The man who won this high praise was born in Lousiana, May 4, 1780, but he was really a Frenchman, as his ancestors were all French except his mother, who was Spanish. His father was the twentieth child of a poor fisherman in the Department of Vendee, in France. At the early age of twelve he set out to seek his fortune and became a sailor. Finally he was given command of a small vessel of the Imperial navy and frequently visited America. So it happened that his famous son, John James, was born there, although a few years later he was taken to the home at Nantes, in France.

He spent a happy boyhood, for through his stepmother's indulgence he was not kept strictly at school, but was allowed to spend much time in the woods watching the birds and gathering their nests, thus early showing the interest which became the dominant influence of his life. His father, on his return home from a voyage, finding the boy was missing the benefits of an education, sent him away to school. Among other studies he had the advantage of drawing lessons from the celebrated painter, David, from whom he learned how to sketch from nature. When at the age of seventeen, his father, being disappointed that his son did not wish to serve under Napoleon as a soldier, sent him to America to look after his property at Mill Grove, near the Schuylkill Falls, he had made sketches of two hundred varieties of birds.

At Mill Grove he spent his time hunting, fishing, and drawing. Love at first sight resulted from the first visit made at the home of his next-door neighbor, an Englishman, and after an interval of a few years, Audubon married his daughter, Miss Lucy Bakewell. Both before and after his marriage various ventures into business ended disastrously. He had no aptitude for a commercial life and devoted himself far more assiduously to outdoor occupations, studying with eagerness the habits of the birds

and animals found in the woods. His father's death brought him no financial gain, for the merchant with whom his father had deposited seventeen thousand dollars, refused to hand the money over to the son until assured of his legal right to it. Meanwhile the merchant died penniless and John James never recovered any of the money due him. With a singular disregard of his own interests he did nothing with the estate left by his father in France, but in later years transferred it to his sister Rosa.

Another business venture turning out badly, he commenced portrait-painting. In this he succeeded remarkably well. Soon afterward he was offered the position of curator at a museum in Cincinnati, receiving liberal compensation for his preparation of birds. He also opened a drawing-school in the city and for a while did well financially.

On October 12, 1820, Audubon started on an expedition into Mississippi, Alabama, and Florida, in search of ornithological specimens. His Journal gives interesting descriptions of what he saw in his wanderings, and the reader is impressed with his enthusiasm over the birds and their habits. At Natchez he was in need of new shoes, and so also was a fellow traveler. Neither had the money to purchase them, but Audubon went to a shoemaker and offered to

make portraits of himself and wife in return for a new pair of shoes for each of them. The offer was accepted and both men went on their way newly shod.

Upon arriving in New Orleans Audubon sought vainly for employment. He secured a few orders for portraits, which relieved his financial need, and he continued his work of painting birds. He also had an engagement to teach drawing at sixty dollars a month for half of each day. Some fourteen months later he sent for his family to join him in New Orleans. He rented a house for seventeen dollars a month and began life therein with forty-two dollars. In order to get money sufficient to educate the children Mrs. Audubon took a position as governess. Depressed in spirit because of his lack of success in earning money, her husband again went to Natchez, paying his way on the boat by a crayon portrait of the captain and his wife. He taught drawing, music, and French in the family of a Portuguese gentleman, and drawing in a neighboring college.

After various trying experiences Audubon reached Philadelphia in the hope that he might obtain help to complete his work on birds. Through an old friend he was introduced to men of standing and influence, especially the portrait-painter Sully, who aided him greatly by

giving him instruction in oil painting. With kind letters of introduction he went next to New York City, but being unsuccessful there went West, mainly subsisting on bread and milk. Arriving at Bayou Sara he found his wife had earned three thousand dollars which, with wifely generosity, she offered to him to help the publication of his book. He resolved on a new effort to increase the amount and engaged to teach dancing to a class of sixty men and women. This brought him two thousand dollars. His determination to persevere in accomplishing the great wish of his life, in spite of these many hardships, is really remarkable.

Fortunately, at the age of forty-six, the tide of fortune turned and he started for England, where he hoped to win for his book on birds the appreciative help he had failed to find in America. In England he met a welcome that was very grateful to him. From the exhibition of his pictures in Liverpool he received five hundred dollars. In Edinburgh the Royal Institution offered the use of its rooms for an exhibit which brought in from twenty-five dollars to seventy-five dollars a day. He wrote to his wife, "My success borders on the miraculous. My book is to be published in numbers, containing four birds in each, the size of life, in a style surpassing anything now ex-

isting, at two guineas a number. I am fêted, feasted, elected an honorary member of societies, making money by my exhibition and my paintings."

March 17, 1827, he issued the prospectus of his book, which was to cost him over one hundred thousand dollars. But his joyous mood could not last long, for hard work and disappointment were still ahead of him. He visited several cities in the endeavor to secure subscribers to his work, at one thousand dollars each. Simultaneously he painted pictures and then spent the evenings trying to sell them. He said he never refused the offers made him for these pictures. He often sold five or seven copies of one painting.

Audubon next went to Paris, where he much appreciated the acquaintance of the famous scientist, Baron Cuvier. Among other pleasing events was the subscription of the King of France for six copies of his "Birds of America." In May, 1829, he returned to America, full of delight at seeing his family again. During the next three months he hunted for birds and animals with which to enrich his collection for publication.

Returning to England, accompanied by his wife, he found that he had been elected a Fellow of the Royal Society of London, a great honor,

as only persons of recognized merit and talents were admitted. In 1830 Audubon began to prepare his "Ornithological Biography of the Birds of America." This contained nearly a thousand pages, and he wrote industriously, a Mr. McGillivray, of Edinburgh, assisting him in preparing it for publication. In March, 1831, his book was about completed and he speaks in his Journal of spending a few days in Liverpool and "traveling on that extraordinary road, called the railway, at the rate of twenty-four miles an hour." He also says, "I have balanced my accounts with the 'Birds of America,' and the whole business is really wonderful; forty thousand dollars have passed through my hands for the completion of the first volume. Who would believe that a lonely individual who landed in England without a friend in the whole country and with only one sovereign in his pocket (when he reached London), could extricate himself from his difficulties, not by borrowing money, but by rising at four in the morning, working hard all day, and disposing of his works at a price which a common laborer would have thought little more than sufficient remuneration for his work? . . . During the four years required to bring the first volume before the world, no less than fifty of my sub-

scribers, representing the sum of fifty-six thousand dollars, abandoned me."

Audubon felt that he must return again to America to explore for new birds to add to his book. He went to Florida and later to Labrador, where he collected one hundred and seventy-three skins of birds and studied the habits of the eider-duck, loons, wild geese, etc. Returning to London once more, in 1834 and 1835 he published the second and third volumes of his "Ornithological Biography," going again to America in 1836 for further research. Another trip to England saw the finish of his great work. It is noteworthy evidence of the indomitable perseverance of the man that he persisted in this frequent crossing of the ocean, for the sake of his work, although he suffered great misery and discomfort from the sea voyages.

In 1839 Audubon came back to New York, purchasing a home on the banks of the Hudson, to which he gave the name of Minnie Land, in honor of his wife, Minnie being the Scotch word for mother, and the name by which he usually addressed her. He had for many years desired to visit the Rocky Mountains, and in 1843 he went to the Yellowstone with a party, in order to gather material for a book on the "Quadru-

peds of America." From the results of this expedition, undertaken when he was sixty years old, three volumes were published. He was only equal himself to the preparation of the first volume, his sons completing the others after his death in January, 1851.

Of John James Audubon one writer has said: "Of the naturalists of America, no one stands out in more picturesque relief than he. He undertook and accomplished one of the most gigantic tasks that has ever fallen to the lot of man to perform. For more than three-quarters of a century his splendid paintings . . . which for spirit and vigor are still unsurpassed, have been the admiration of the world. As a field naturalist he was at his best and had few equals. He was a keen observer, and possessed the rare gift of instilling into his writings the freshness of nature and the vivacity and enthusiasm of his own personality. His was a type now rarely met, combining the grace and culture of the Frenchman, with the candor, patience and earnestness of purpose of the American." As a pioneer in an unknown field he naturally made some mistakes but he was always sincere and honest in presenting his convictions. Another writer says; "He has enlarged and enriched the domains of a pleasing and useful science; he has revealed to us the existence of many species of

birds before unknown; he has given us more accurate information of the forms and habits of those that were known; and he has imparted to the study of natural history the grace and fascination of romance."

The National Association of Audubon Societies is a fitting monument to this lover of birds. It sustains the Audubon wardens, the minute men of the coast, whose duty it is to protect the waterfowl from destruction because of their service to humanity as the scavengers of the coast region. It maintains havens for the birds at nesting time; and in many ways protects our feathered friends.

THE INVENTOR OF THE TELEPHONE

ALEXANDER GRAHAM BELL

"IT TALKS!" exclaimed Dom Pedro, Emperor of Brazil, when at the Centennial Exposition in Philadelphia he took up a telephone receiver and put it to his ear. Then Lord Kelvin, electrical scientist of the first rank and engineer of the Atlantic cable, took his turn at the strange new instrument. "It does speak," he said. "It is the most wonderful thing I have seen in America." And so one after another notable man listened and was astonished. Thus the telephone made its first public appearance. It was the most dramatic event of the exposition which displayed many remarkable inventions.

The man who had invented this marvelous instrument was Alexander Graham Bell, who was born in Edinburgh, Scotland, March 1, 1847. He was educated at the Royal High School of his native city and in London. But his relatives had the largest share in preparing him for his after success in life. Grandfather, uncle, father, and two brothers had all specialized in the study

of the laws of speech and sound, and had taught and written on that subject, so that through them he secured knowledge that was of great help to him in his discovery of the principle of the telephone. In London, soon after he reached the age of twenty-one, and while teaching elocution, experiments in producing vibrations on tuning-forks by means of an electromagnet aroused in him an enthusiasm for scientific discovery.

But it was hindered by illness. Tuberculosis caused the death of two brothers, and he himself was threatened with the same dread disease. In hope of averting the danger, he and his father and mother left Scotland for Canada, where at Brantford he fortunately succeeded in overcoming the trouble, meanwhile interesting himself in teaching a tribe of Mohawk Indians a sign-language invented by his father and called "Visible Speech," each letter representing a certain action of the lips and tongue. He had previously, in London, been particularly successful in using it to teach deaf-mutes to talk. This led to an offer of five hundred dollars from the Board of Education of Boston to introduce the system in a school for deaf-mutes which had been opened. Alexander Bell gladly accepted, with such success that he won a professorship in Boston University and also

started a school of vocal physiology which proved profitable.

These occupations interfered with the pursuance of his inventive ideas, but at the end of two years he found opportunity to carry on his experiments in the home of a deaf-mute pupil in Salem. The father of the boy, Thomas Sanders, became deeply interested and eventually was closely associated with the development of Bell's great invention, paying practically all his expenses until success was attained. The father of another deaf-mute pupil, Gardiner G. Hubbard, a well-known Boston lawyer, also cooperated largely in carrying out Bell's plans. His daughter Mabel became the wife of the young inventor four years later, and was very helpful to him. But for the assistance of these two men it would have been almost impossible for Bell to have succeeded, for he had given up his professorship and his school in order to have time for his experiments. He was convinced that it would be possible to construct an instrument that would actually convey the sound of the human voice, and patiently toiled by day and by night to find the principle on which it could be done.

At the suggestion of a friend, Dr. Clarence Blake, he experimented with a real ear cut from the head of a dead man. From that he conceived

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ALEXANDER GRAHAM BELL

the idea of a telephone formed of two discs, or ear-drums, far apart, and connected by an electrified wire that would catch the vibrations of sound at one end and reproduce them at the other. It was on an afternoon in June, 1875, that Bell caught the first faint sound over the wire, but more patient study and effort had to be made before words were audible. At last, on March 10, 1876, to the almost wild delight of Bell and his assistant, Thomas Watson, the words "Watson, come here, I want you," spoken by Bell in a room up three flights of stairs, at 109 Court Street, Boston, were heard distinctly by Watson in the basement. On his twenty-ninth birthday Bell received the patent securing his rights as inventor of the telephone.

With the exception of the few scientific men who heard it at the Centennial Exposition, no one put any faith in what Lord Kelvin described as "the greatest marvel yet achieved by the electric telegraph." Men of business said, "It is only a scientific toy; it can never be a practical necessity." It seemed so absurd to speak into a tube or box that Bell was ridiculed as "a crank who says he can talk through a wire." Yet so confident was the young inventor of the ultimate results of his discovery, that in a public address at Kensington, England, in 1878, he said: "It is conceivable that cables of telephone wires could

be laid underground or suspended overhead, connecting up by branch wires private dwellings, country houses, shops, manufacturing establishments, etc., and also connecting cities and towns and various places throughout the country. I am aware that such ideas may appear to you utopian and out of place, but I believe that such a scheme will be the ultimate result of the introduction of the telephone to the public." His faith has been abundantly justified.

The Bell telephone as first exhibited was simply an old cigar-box and two hundred feet of wire, with a magnet from a toy fishpond, but it demonstrated the possibility of making the human voice audible to a person at a distance and out of sight. On October 9, 1876, the first conversation between two places was conducted over a wire two miles long, from Boston to Cambridge. The actual words spoken and heard were published in the *Boston Advertiser* of October 19, and a little later the *Boston Globe* reported a lecture delivered in Salem and transmitted by telephone over a space of sixteen miles. In 1880 there was speech over a wire forty miles long, from Boston to Providence; and in 1885 a long-distance line was built from New York to Philadelphia, and in 1893 one from New York to Chicago. In 1896 the Rocky

Mountain Bell Company had erected a seventy-thousand-mile system for the far West.

But before all this happened many disappointments and discouraging experiences had come to the men who had so persistently believed in and worked for the great discovery. For a long time it was almost impossible to persuade business men that the telephone could be of practical use to them. Then the Western Union Telegraph Company realized that it had a competitor and proceeded to fight it with all the means at its command. It induced Thomas Edison, Amos Dolbear, and Elisha Gray to invent an instrument which it advertised as the only original telephone. Its action, however, stimulated interest, and capitalists began to take hold of Bell's patents, organizing a company to develop the business in New England. Mr. Theodore Vail was made general manager and he started to create a national telephone system. For seventeen months after Bell's invention was known no one disputed his claim, but as its value began to be appreciated other claimants appeared, and the Bell company had to engage in a patent war that continued for eleven years and included six hundred lawsuits. At last, in 1879, the Western Union acknowledged it could not prove its case, admitted that Bell was the

original inventor of the telephone, and that his patents were valid.

"Every telephone in the world is still made on the plan that Bell discovered. In the actual making of it there was no one with Bell or before him. He invented it first and alone." Others have made it more perfect and useful, until to-day "a telephone on a desk, instead of being the simple device first in use, contains no less than one hundred and thirty pieces, with a salt-spoonful of glistening granules of carbon."

After years of struggle and hardship success came rapidly. Bell and the men who had helped him during those years of poverty, one after the other, sold out their interests in the telephone company and became millionaires. Mr. Bell himself refused an offer of ten thousand dollars a year to be the chief inventor of the company, saying he "could not invent to order." He has now a handsome house in Washington and a summer home of seven hundred acres at Cape Breton, Nova Scotia, where he devotes his time to researches for the benefit of the human race. He has invented the photophone and the induction balance. Men on the battlefields and in the hospitals of Europe are grateful to him for his invention of the telephone-probe for the painless detection of bullets in the human body. For this he was given the honorary degree of M. D.

by the University of Heidelberg. The Emperor of Japan bestowed on him the highest order in his gift—that of the Rising Sun. The Royal Society of Great Britain and the Society of Fine Arts of London gave him medals. The Government of France made him an officer of the Legion of Honor and awarded him the Volta prize of fifty thousand francs. He devoted this gift to the establishment and endowment of the Volta Bureau in Washington, for the "increase and diffusion of knowledge relating to the deaf." He also founded the American Association to Promote the Teaching of Speech to the Deaf, to which he contributed two hundred and fifty thousand dollars.

Rarely does any man within his own lifetime see such an extensive and wonderful development of the product of his own brain and hand as Alexander Graham Bell has witnessed. It is one of the marvels of our age. It is really a fascinating story and is well told by Herbert Casson in his book, "The History of the Telephone." In brief, it may be thus described: The Bell telephone secured its first million of capital in 1879; its first million of earning in 1882; its first million of dividends in 1884; its first million of surplus in 1885. It began first to send a million messages a day in 1888; had strung its first million miles of wire in 1900, and

had installed its first million telephones in 1898. At the end of 1921 there were 13,380,000 Bell stations in the United States, with a total of twelve billion calls for the year.

Big business is dependent on the telephone. E. H. Harriman, the great railroad chief, found it necessary to have a hundred telephones in his house at Arden, sixty of them linked to long-distance wires. A firm of Wall Street brokers will send fifty thousand messages in a year, some of them double that number. The Standard Oil Company sends two hundred and thirty thousand messages in a year from its New York office alone. The Electric Light Company in New York has twelve private exchanges and five hundred and twelve telephones. In greater or less degree like statements may be made of business concerns all over the country.

In times of fire, flood, and danger of any kind the telephone is instantly called into use and proves the salvation of many people. In war it is of invaluable service. In 1909 it saved a three-million fruit crop in Colorado. The spring frosts had frequently done much damage. But in that year the farmers procured three hundred thousand or more smudge-pots and arranged with the United States Weather Bureau to send them warning. The first word came when the apple trees were in bloom. "Get ready to light

your smudge-pots in half an hour," was the word. Immediately the farmers telephoned to the nearest towns for help, and hundreds of men and boys came quickly. Then came the warning: "Light up; the thermometer registers twenty-nine."

At the National Geographic Society dinner in Washington, March 7, 1916, U. N. Bethell, senior vice president of the American Telephone Company, proposed a toast to "the foremost figure in the creation of this American art, that distinguished American, Dr. Alexander Graham Bell, of Scotland. We all know, though, that Doctor Bell is an American as much as any Pilgrim Father ever was. Americans of his type, who could not control the accident of birth, have helped to transform a wilderness into sovereign states, and to create great industries, important cities, vast empires, and all that sort of thing. They are proud of America and America is proud of them."

Of the wonders of the modern world the telephone takes almost the first place and its inventor must needs be always recognized as one of the greatest benefactors of mankind.

THE MAN WHO MADE THE FIRST REAL NEWSPAPER

JAMES GORDON BENNETT

THE man who first introduced people to the modern newspaper was James Gordon Bennett. Before his venture the daily papers were not *news* papers. As one writer puts it, "he paved the way for things that were revolutionary in that day, though commonplace now." Bennett recognized the great change that was coming to this country through railroad, agricultural and industrial development and felt that people in everyday life needed to be brought into touch with the daily happenings arround them; so he made and published the first real *news* paper.

It is particularly interesting to learn that it was not a native-born American, who did this service for the people of this country, but a Scotchman born in 1800 at Newmill, Banffshire, James was sent to the seminary at Aberdeen to be educated for the Roman Catholic Priesthood. He had an absorbing love of reading and was strongly impressed by reading the life of Ben-

jamin Franklin, written by himself. Singularly this proved to be the loadstone that drew him to this country. Meeting a friend one day in 1819 he found that he was planning to come to America and immediately James told him that he would come with him as he was anxious to see the place where Franklin was born. He arrived in Halifax, Nova Scotia, without knowing any one in this land and with only twenty-four dollars in his pocket.

During the next sixteen years he had varied opportunities to get in touch with journalism, working first as a proof reader for the publishers of the North American Review, in Boston; then in 1822 as Spanish translator and assistant for the *Courier* of Charleston, S. C. In 1827 he was Washington correspondent for the *Inquirer* of New York. In 1833 he became part owner and principal editor of the Philadelphia *Pennsylvanian.* In these connections Bennett was a vigorous supporter of President Jackson and vice-president Buchanan, but his experiences with politics were so disappointing that he finally abandoned them entirely.

On May 6, 1835, he issued the first number of the *New York Herald,* a small sheet of four columns, from his office in a cellar. For sometime he did all the work on it himself, rising early and retiring late. He collected the news, wrote

the whole paper, kept his own books and made out his bills. The paper attracted attention because it dealt with people and things without gloves. It was extremely frank in its comments.

Some of the editors of the six-cent dailies were heavy speculators and printed articles intended to affect the value of certain stocks. Mr. Bennett did not hesitate to assert that these editors were "truly unfit by nature and want of capacity to come to a right conclusion on any subject. . . . They pervert every public event from its proper hue and coloring, to raise one stock and depress another. There is no truth in them."

It was the custom at this period for editors to engage in mud-slinging to a large extent. Horace Greeley, Joseph Pulitzer, James Gordon Bennett, James Watson Webb, William Cullen Bryant, and others did not hesitate to attack each other physically as well as verbally. On one occasion Bennett was knocked down in the street by Webb, and he retaliated by writing up the event in his paper, the *Herald,* in the following fashion; "The fellow no doubt wanted to let out the never-failing supply of good humor and wit which has created such a reputation for the *Herald,* and appropriate the contents to supply the emptiness of his own thick skull. He did not succeed however in rifling me of my ideas.

He has not injured the skull. My ideas in a few days will flow as freely as ever and he will find it out to his cost."

This method was an innovation and it proved a success, for it sent the circulation of the issue containing it up to 9,000 copies. Another assault by Webb occurred again a little later and was reported in similar style, ending with the statement, "As to intimidating me or changing my course, the thing cannot be done. I tell the honest truth in my paper and leave the consequences to God. Could I leave them in better hands?"

At the time he started the *Herald* he stated that it would be independent of any party and that his endeavor would be to record facts on every public and proper subject. "I feel myself in this land to be engaged in a great cause, the cause of truth, of public faith against falsehood, fraud and ignorance." The egotism of the man was colossal, but even his former enemies who were many, stated later that "we know that Bennett violated no law other than the canons of good taste." Oswald Garrison Villard, a noted journalist, considered that he "lacked moral fibre," but that he "revolutionized the whole science of newsgetting."

It is this feature of his work that is most notable. He introduced into the *Herald* many

new things that have now become common to almost all dailies. He was the first newspaper editor in the United States to print Wall St. financial articles; he started modern reportorial methods in his graphic accounts of a great fire, with a picture of a burning building and a map of the devastated district; his was the first paper that published a telegraphic report of a speech spoken at a distance; the speech of Henry Clay on the Mexican War, delivered at Lexington, Ky., in 1846, was sent by express eighty miles to Cincinnati, and thence telegraphed to New York.

In 1841 Bennett published reports of the congressional debates without any cost to the United States Treasury; he organized a corps of reporters at an expense of nearly $200 a week, to give these reports from both houses. To put the news from everywhere within the reach of all the people was his chief aim, so he chartered vessels to meet ships coming from Europe and gain the latest information from across the sea; in 1838 he visited England and France and engaged at a liberal compensation correspondents of literary ability. During the civil war he employed a corps of sixty-three correspondents at an expense for four years of $525,000. Systematic distribution of his paper by newsboys was also a new feature introduced by him.

It is not surprising that by these means he made the *New York Herald* a success and acquired a large fortune which he used generously for the public good. Among others it is noteworthy that when David Livingstone, the famous missionary and explorer, had not been heard from for six years, Mr. Bennett sent Henry Stanley to Africa to search for him, at a cost to himself of $500,000.

Any bad things that were said of Bennett in his earlier years were due largely to the sensational methods he adopted to make his paper a success, but he himself said that no one in the city could say aught against his private character, and his rivals who were strong in their opposition to him, did him justice to the same effect. By his indomitable energy, his Scotch shrewdness, and his spirit of enterprise, he won a distinguished place as an editor and did a service to Americans in giving them their first real *news* paper and at much personal expense providing opportunities for a knowledge of world events that since he initiated them have become a daily thing for every man and woman.

ANOTHER GREAT INVENTOR

EMILE BERLINER

"WONDERFUL as was the invention of the telephone by Alexander Graham Bell, the work of others was necessary to improve and perfect its parts and its machinery. Practically the part of the telephone which is called the receiver comprised the whole of Bell's invention." It introduced to the world a new capacity to hear. It conveyed sounds across long distances in a marvelous way.

The first important improvement upon Bell's invention was made by a young foreigner, Emile Berliner, a German born in Hanover in 1851. He graduated from the Samson School of Wolfenbüttel, and came to the United States in 1870. His early years in this country were full of difficult experiences. He began life here as a "sort of bottle-washer" in a chemical shop in New York City at six dollars a week. His evenings were spent in studying science in the free classes at Cooper Institute. He also received help and inspiration from the gift of a copy of Müller's book on physics.

The telephone attracted his interest and he started out to make one. As a result of his efforts the part called the transmitter was invented and he obtained a patent upon it in 1877. He was then twenty-six years old, and was employed as a clerk in a dry-goods store in Washington. It seems remarkable that he should have been able in the limited time at his disposal to acquire sufficient knowledge to understand and apply the scientific principles necessary to the development of such an instrument.

He had learned telegraphy as an aid to his investigations, and while practicing at the central fire-alarm station in Washington was told by the operator there that by greater pressure upon the keys the current became more intense and the sending distance was increased. Instantly he grasped the idea of the transmitter, the basic plan of which is the "varying of the electric current by carrying the pressure between two points."

Berliner was poor and had no means by which to push his invention. Other scientists had seen the need and had been studying the same problem. Two weeks after Berliner had secured his patent, Thomas Edison also invented a transmitter, and for a time the prior claim of the young German-American had no chance.

Finally the Bell Telephone Company bought his patent and fought for his rights as the original inventor. After fourteen years of waiting the Supreme Court of the United States declared that he was justified in his contention that his invention was prior to that of Edison.

In 1888, Berliner foretold in a lecture that the time would surely come when singers and speakers would be able to make their voices heard around the world; and he himself was one of those who helped to make this dream come true. Leon Scott had discovered that sound-waves projected against a diaphragm having a hog-bristle glued thereto caused vibrations that made undulatory marks upon a moving paper covered with lampblack. Edison improved upon his method by using a needle attached to a diaphragm to produce the undulations, and so discovered the power of reproducing sounds. From these discoveries were evolved the graphophone and phonograph.

Berliner invented still further improvements by making the stylus which records sounds vibrate laterally, reproducing them by a stylus which is guided only by the groove of an even depth in which it moves. He named his talking-machine the gramophone. It is also known as the Victor. For this invention he was awarded the John Scott medal and the Elliott

Cresson gold medal by the Franklin Institute of Philadelphia.

A writer in the *Scientific American,* in June, 1889, tells an interesting story of his first experience in hearing a talking-machine. He says: "I visited Berliner's laboratory and sat some twenty feet distant from his large trumpet. Berliner sat by the table behind the trumpet and slowly turned a small crank. I heard all around me the following music: a little German march by four brass instruments, 'Warrior Bold,' a Venetian serenade, and a cornet solo. The execution was excellent and the tunes so loud that I heard well while walking about the room and in the passage.

"Berliner showed me the process. He took a small flat disk of zinc, twelve inches in diameter and one-eighth of an inch thick. He poured upon it a liquid which looked like pale oil, which he termed "digested fat"; a very slight film remained on the disk, having become dry in half a minute. He repeated the same operation, and after about one minute plunged the disk into cold water for half a minute. The disk, also the water at its surface, was coated with a fatty substance. He then placed the disk on the revolving table. I was asked to speak against a small tympan about two inches in diameter, having a point of a common darning-

needle projecting from its center resting on the disk which was revolved by Berliner. When I finished speaking, Berliner placed the disk in a basin filled with acid, where it remained for about twenty minutes. Then he took the disk out of the acid, and washed off the remaining fatty substance, and with a magnifying glass I saw the wavy curved lines which had been eaten into the disk, which was then put on the turning-table. The same device into which I had spoken was set with the point of the needle in one of the concentric lines; the disk was turned, and I heard all that I had said clearly and distinctly and loudly reproduced. I could not recognize my own voice; no one can recognize his own voice. About two hours afterward I took a lady to hear it, and she at once said, 'Why, that is your voice.' "

Another of Berliner's well-known inventions was the duplicating of disk records.

In 1917 he began the manufacture of an air-cooled engine with revolving cylinder, which is now extensively used in aeroplanes.

Dr. Emile Berliner's early commercial training and his good judgment, assisted by a keen intuition, enabled him to foresee the need for his inventions and to place them where they would be of immediate practical use. In this way he succeeded in making them very profitable. The

Bell Telephone Company spent about forty-one million dollars in sustaining his patent on the transmitter and found themselves amply repaid, while the inventor himself had a generous share in the returns for his invention. The Victor Talking Machine Company also expended half a million dollars in support of his rights on the basic patent of the disk-talking machine.

To him we are indebted for a wonderful means of communication with our fellow men when they are out of sight, and also for an immense amount of pleasure in being able at a comparatively small cost to hear celebrated singers and speakers whose faces we may never have an opportunity to see.

Not all of Doctor Berliner's time and effort were expended in scientific studies and his inventions which have proven valuable to his adopted country. For several years he was interested in pushing an educational campaign showing the danger of raw milk and other dairy products; he planned and was a member of the Washington conference, held in 1917, for the advocacy of safe milk. He was also interested in efforts to abate the evils of tuberculosis.

IN THE FOREMOST RANKS OF SCULPTORS

KARL BITTER

A FUGITIVE from Austria because of military oppression, who at the age of twenty-two, entered the United States in 1889, and although he had to work at stone cutting to relieve his poverty, yet within one year won over older and better known men in a competition for the designing of the bronze doors of Trinity Church, New York City, certainly gave satisfactory evidence that he was an unusual man and a rare artist.

Karl Bitter was born at Rudolfsheim, near Vienna, in 1867. He studied at the Academy of Fine Arts in Vienna and early showed his artistic talent and also his democratic tendencies toward freedom of speech in political affairs. As usual in his native land he had to enter the army at the age of nineteen but it was sorely against his will to serve in it for three years, there being at that time no release after one year's service, for an art student on passing a given examination. He begrudged giving three good years of his youth to army life.

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KARL BITTER

Unfortunately also, or perhaps fortunately as it resulted, he was under a lieutenant who was of the domineering type, who subjected Karl to many unnecessary humiliations. He bore them as well as he could, until one day his captain sent for him and voluntarily gave him a brief furlough, saying significantly "I suppose when this is up we shall not see you again." It was a surprise but not unwelcome, so Karl fled to Germany, and thence in 1889 to the United States. It is interesting to know that although as a fugitive, he could not enter Austria without the royal pardon, that pardon was freely accorded him in later years when he had won fame, and upon returning to his native land he was given a warm welcome by his former friends.

It was really a dramatic event when in Bitter's studio in New York City there appeared one day this same lieutenant who little dreamed that he was asking assistance of the very man whom he had treated so meanly during his army life. Nevertheless in a truly Christ-like spirit, Karl Bitter not only fed and clothed him but engaged him as his servant for two years.

About the same time that he won the competition for the work on the doors of Trinity Church, which brought him fame, he won also the friendship of William Morris Hunt which was invaluable to him. Through him he received a com-

mission to decorate the Administration Building at the World's Fair, Chicago, in 1893, and later also that of the Machinery Building. Thus success fully started, Karl Bitter had no further difficulty in obtaining opportunities for his sculpture work. He was truly American in spirit and entered so completely into a high conception of the ideals which should govern his art, that he was called upon to execute numerous public works. One of those widely known is that in the Broad Street station, Philadelphia, of Mercury and Athena advancing in the chariot of civilization. On the St. Paul Building in New York City are three colossal caryatides in stone, which represent the white, negro and Malay races. He also did significant work in adorning with sculpture the residences of many noted men, notably, that of George Vanderbilt, at Morency.

In the memorial for William H. Baldwin, Jr., at Tuskegee, and the exquisite medallion presented to Robert C. Ogden, Bitter gave convincing evidence of his keen understanding of the great race problems of our country. In the wonderful panels of the monument to Carl Schurz he exhibited this same quality of conception of a pressing problem. He showed his freedom-loving spirit and also his appreciation of art in relation to municipal life, in giving to

this statute and that of General Franz Sigel a character that perpetuates that for which each of them stood. To municipal art he gave much time and thought, believing that he could truly serve this country by giving to its people the best that was in him, that which should develop their artistic sense for the future as well as the present. His work on the Municipal Art Commission of New York is typical of the responsibility he felt as a citizen of America.

As an interpreter of American history this foreign-born citizen has exhibited his remarkable power in a superb group in the "Signing of the Louisiana Treaty" and in that of the "Winning of the West." It is a striking testimony to this power of Bitter's to express by his art our national life, that he should have been given charge of the sculpture in three of our great expositions—Buffalo, St. Louis and San Francisco. It is significant of the strength of his personality that the appropriation for the sculpture at Buffalo was only $30,000 but when the directors saw his enthusiasm and energy it was immediately raised to $200,000. Bitter was strongly convinced that American sculpture should represent the highest ideals that could control our national life. It is noteworthy that in all his public work he never sought to find what he as an artist could get out of it but gave himself most thoroughly to

do the best work he could for the public good. It is in this respect particularly that his early death at the age of forty-seven, when he was suddenly taken away in the zenith of his fame by being struck down by an automobile, was universally recognized as so great a loss to this country.

It was a remarkable event in Bitter's life that when he was still in the early thirties, and had been in this country only eleven or twelve years. he was chosen to superintend the sculptural decoration of the arch in celebration of Admiral Dewey's victory for America in the Philippines. "In the group he himself contributed he has by his portrayal of a virile gun crew gathered about a quick firer and his shield, typified in a wonderful way the spirit of duty and daring of the American sailor." "It is one of the finest works of our day."

It was not in Bitter to do any work that was not honest. Even in the days of poverty before he was known to fame no money or influence could persuade him to do any work that would flatter or misrepresent the true spirit of the personality portrayed.

At the age of forty he was elected head of the National Sculptors Society and at his death he was holding this position for the second time. The last great work in which he was engaged was the Hendrick Hudson statue at Duyvil Hill

where Hudson had his first encounter with the Indians. It is the general verdict that it is impossible to think of this foreign-born citizen as "anything but American." "In the very best sense of the word he was a great American."

THE MAN WHO MADE THE MOST OF OPPORTUNITIES

EDWARD BOK

"MAKE you the world a bit more beautiful and better because you have been in it." This was the message given by the grandmother of Edward Bok who is known to so many thousands of people as the editor of the *Ladies Home Journal.* Through that magazine he endeavored to carry out his grandmother's advice.

Few boys have made so much of opportunities, a habit that was naturally continued when he reached manhood and which undoubtedly occasioned his wonderful success. It is so unusual a story that it is worth telling.

In 1870 there landed in America, from the Netherlands, a family of four—father, mother, and two boys, one eight and a half, the other, Edward, almost seven. A reversal of fortune had brought them here and for some time the father and mother had a hard and difficult experience in exchanging a life of wealth and ease for poverty in a new country. The mother's health failing, under the burdens she had to

carry, the two small boys decided to relieve her of the morning's housework and also to give up their play hours after school to aid her.

Edward also sought to add to the family income. He was standing one day before the window of a baker when the owner came outside to view the assortment he had just placed there. "Look pretty good, don't they," he said, and Edward, with the Dutch boy's training in cleanliness, answered, "They would, if your window were clean." "That's so," replied the baker, "perhaps you will clean it." "I will," was the answer, and thus Edward Bok got his first job, for the baker arranged with him to clean the window each Tuesday and Friday afternoons after school, for fifty cents a week. This opportunity led to another, for one day he ventured to wait on a customer when the baker was busy. He did it so well that he was engaged to come each afternoon to sell goods, for a dollar a week. Edward agreed to the bargain on two conditions, one, that each afternoon he should take home to his mother a portion of unsold goods, and the other that he should be excused from service on Saturdays, because he had agreed to deliver a weekly paper for the entire neighborhood. This brought him another dollar, thus giving him a weekly income of $2.50.

Edward's next opportunity came when he dis-

covered that the men on the horse cars that ran past his home to Coney Island, were accustomed while the horses were being watered, to jump off the cars in the summer time to get a drink of ice water before going out on the long ride. He thought that the women and especially the children, who could not get off the cars, would be glad of a drink, so the enterprising youngster bought a new pail, screwed three hooks on its edge, from which he hung three glasses, and one Saturday afternoon he jumped on a car, offered the conductor a drink, and sold ice water at one cent a glass to the passengers. He soon found that he exhausted the contents of one pail for every two cars and each pail netted him thirty cents. Sunday afternoon was still more profitable, and after attending Sunday School in the morning he refreshed tired mothers and thirsty children, He made a profit of six dollars for his two afternoons of work.

When competitors started in to challenge his trade, he added six lemons and some sugar to each pail and charged three cents a glass, finding by this means he still had the monopoly, as more people wanted lemonade than water.

His next scheme was carried out by our little Dutch friend by writing a report of a party of young people which he attended, taking care to insert the name of every one present. Then he

took it to the editor of the *Brooklyn Eagle,* remarking that every name mentioned represented a buyer of the paper, who would like to see his or her name in print, and if the editor had enough of these reports he might easily increase the circulation of the *Eagle.* The editor accepted the suggestion and offered to pay Edward three dollars a column for such reports. The young fellow soon organized a group of boys and girls who promised to write an account of each party they attended. Within a short time Edward was turning in three or four columns a week, his pay was raised to four dollars a column, and the editor was delighted to have in his paper a department which other papers did not have. Thus young Bok early started his journalistic career as a reporter.

With so many occupations on hand, Edward found it increasingly difficult to keep up his school work and he wanted to give it up. His mother objected but soon after, a vacancy occurred for an office boy in the Western Union office at $6.25 a week, and she consented to his taking it. He was now thirteen years old.

Edward had by no means sought release from school with the idea that he had enough education. He at once planned how to get more while he was working. He determined first to find out how some of the big men whom he saw

every day in the office, and whom he knew had missed a college education had yet risen to the top. Not being able to get separate biographies, he tried to find one book that would tell him of several successful men, and finding it, he saved his luncheon money, walked instead of riding the five miles to his Brooklyn home, and finally had sufficient to purchase Appleton's Encyclopedia. He decided to test the correctness of the biographies and with the simple directness of a Dutch boy he wrote to General James A. Garfield asking if the story of his once being a boy on the towpath was true, and telling him why he asked. General Garfield answered him fully and cordially. Then the idea came to the boy to procure other letters from noted men, not only for their autographs, but also for the sake of learning something useful. It never entered Edward's mind that possibly they might not take the trouble to answer him.

So he started, asking why one man did this or that, or the date of an occurrence in his life. The replies were of course interesting, for General Grant sketched on a map the exact spot where General Lee surrendered to him; Longfellow told him how he happened to write his poem, "Excelsior," and so on. Among others he received one from General Jubal A. Early telling the real reason why he burned Chambersburg,

and a friend suggested that as a bit of history it might be published in the New York *Tribune*. Naturally it attracted national discussion and it led the editor to send a reporter to Edward to see if he had other interesting letters. The result was that a long story was published about the boy autograph collector. Other papers followed suit and wrote about him. Several authors asked Edward to come and see them, so the boy watched to see when distinguished men arrived in Brooklyn and he then would go and call on those to whom he had sent letters and thank them personally. In this way Edward made friends of General and Mrs. Grant, President Hayes, General Sherman, Mrs. Abraham Lincoln, Jefferson Davis, and many others.

Edward one day got an idea that it would be a good plan to have a brief biography on the back of each picture of a noted American. He went therefore to Mr. Knapp, president of the Knapp Lithographic Company, and stated his idea. He was at once asked to write a one hundred word biography of one hundred famous Americans at ten dollars each. Edward had in this his first literary commission more than he could accomplish; when he completed the first hundred Mr. Knapp called for a second, and then for a third. So Edward engaged his brother to write for him at five dollars each bi-

ography. Three journalists on whom he could depend he also engaged to do the work for him; so he started on his first work as an editor.

In the evenings he learned shorthand at the Y. M. C. A., and at a business college, and at sixteen was given by the *Eagle* an order to report two speeches at a dinner; one that of the President of the United States, which he was to give verbatim, and the other of General Grant. That of President Hayes was too rapidly delivered for the boy, but undaunted, he sought the President afterwards and asked if he could not give him a copy of his speech. Mr. Hayes took him with him in the carriage and gave him a copy, but not until he had asked him why he requested the waiter to remove the wine glass from his place at the dinner. Edward explained that he felt he needed a clear head for his work and as he had never tasted it, he decided he would not begin then. The next evening he was surprised to receive a note from the president, asking him to call that evening upon Mrs. Hayes and himself as they were interested in what he told Mr. Hayes. Needless to say the boy did so and spent a delightful time and this was by no means the only visit he was asked to make at the White House. Almost every month a letter came to Edward from the President until in 1892, the last letter was very short, saying he would write

more if he could, and was signed "thankfully your friend, Rutherford B. Hayes," with the postscript, "Thanks, thanks for your steady friendship."

During his vacation which he took in the winter for the purpose of spending a week in Boston and seeing other noted men, Edward was invited to breakfast with Oliver Wendell Holmes and went to the theater with Longfellow. The authors seemed to have enjoyed the simple ingenuousness of the boy. At this time he saw also Phillips Brooks, Emerson, Louisa Alcott, Wendell Phillips and Charles Francis Adams who secured autographs for him of John Quincy Adams and his father.

The next opportunity of which Edward made good use, came to him as he was reporting the news of the theaters for the Brooklyn *Eagle*. One evening he noticed the restlessness of the audience between the acts, and the thought came to him that a smaller program with a cover and attractive reading matter would be profitable. He offered to supply it to the manager of that theater without cost, and realizing that the idea would soon be taken up by other theaters, he proceeded to secure exclusive rights. He also took a friend, experienced in publishing and advertising, into partnership. They solicited advertisements as they went to and from business

mornings and evenings. The scheme was successful, giving a fair profit each week.

This led to his entrance into a debating society of young men in Plymouth Church, and it was not long before he was elected president. Then the two partners started the *Philomathian Review,* as an organ for this society, Edward being its editor. Gradually he broadened its scope and in 1884 its name was changed to that of *The Brooklyn Magazine. The Plymouth Pulpit* was publishing verbatim reports of Mr. Beecher's sermons, and Edward thought it might be combined with this magazine, only it would require more capital than the two young men could furnish. This was furnished them by Mr. Beecher's aid. Bok sought the help of his autograph friends and soon an issue of the magazine contained a contribution by President Hayes. This was quite unusual, for presidential writings had hitherto been confined to official announcements. The magazine became a decided success.

During this time Edward was still in the employ of the Western Union, but in 1882 he took a position with the publishers, Henry Holt & Company, as a stenographer. Edward now started to furnish the newspapers with articles on the syndicate plan, for which they paid. Mr. Beecher was secured for a weekly comment on

current events. The plan worked well and Edward organized the Bok Syndicate Press, with its office in New York and his brother, William J. Bok, as partner and manager. At this time he thought of trying to get women to read the newspapers by having the editors publish matter in which they would be interested. He foresaw also that an increase of women readers would benefit the advertising immensely. He secured a letter entitled "Bab's Babble" containing New York news, and this was a wonderful success. He syndicated it among ninety newspapers. He also obtained from Ella Wheeler Wilcox a weekly letter and syndicated that with the other. That suggested a whole page given to women's interests, so he made arrangements to have noted women writers and also the best of men writers to write on women's topics. This came to be called the Bok page. He always kept up a high standard in the material furnished.

After Bok had been with Henry Holt & Company for two years he entered the employ of the Scribner firm as stenographer with a salary of $18.33 per week. He was now twenty-one years old. His position with the Scribners was an education in itself, for he came in touch with the leading authors of the day, and when the firm decided to establish *Scribner's Magazine,* Bok was

given charge of the advertising department.

In 1889 Cyrus H. K. Curtis, owner and publisher of *The Ladies' Home Journal,* suggested to Bok that he would like to have him take the editorship of the magazine, and he did so. He started the work with some new methods. One of his first acts was to offer prizes for the best answers to three questions: what in the magazine did they like least, and why; what did they like best and why; what omitted features would they like to have included. Thousands of answers were received and Bok gave his readers what they desired but always on a higher plane.

Under the name of Ruth Ashmore he started a department entitled "Side Talks with Girls" and persuaded Mrs. Isabelle A. Mallon, the "Bab" of the syndicate letter, to take the position of its editor. She held it for sixteen years, during which time she received 158,000 letters, keeping three stenographers busy answering them. Bok had divined a great need of the American girl for a confidant, and innumerable girls were helped through this department.

Mrs. Margaret Botomme, President of the King's Daughters, he secured as editor of a department entitled "Heart to Heart Talks," to meet the spiritual needs of mature women, and this became as popular as the other. He

employed an expert for each line of feminine endeavor, building up this service until he had a staff of thirty-five editors on his monthly pay-roll. In each issue he urged the readers to write for information on all topics, until during the last year when it was stopped by the great war, the yearly correspondence totaled almost a million. Cases of confidential nature were entrusted to Mrs. Lyman Abbott ,whom Mr. Bok selected for the delicate work of investigation and personal contact. The good thus accomplished cannot be overestimated.

Edward Bok's own lack of opportunity for an education, led him to seek some way whereby it might be obtained without expense by any one who desired it. He offered scholarships in all girls' colleges and later in those of men, to all who secured a certain number of subscriptions for the *Ladies' Home Journal.* Up to the close of 1919, 1455 scholarships have been awarded. Another plan of his was to engage a noted woman physician, Dr. Emeline L. Coolidge, to tell young mothers how to care for their babies, and this department was very successful, receiving the warm approbation of physicians all over the country. At the end of the tenth year over forty thousand mothers had been advised and the number of babies actually raised by Dr.

Coolidge's directions through the correspondence of the *Journal,* approached eighty thousand. The magazine in these ways became a vital power in the lives of its readers.

In seeking to carry out his grandmother's injunction to make the world a bit more beautiful, Mr. Bok did constructive work in the magazine by publishing a series of houses which could be built for $1500 to $5000 each. He offered to supply full building specifications, and plans to scale, of houses, with estimates of four builders in different parts of the United States, for five dollars a set. Slowly he won the approval of leading architects who saw that he might become an influence for better architecture. For nearly twenty-five years Mr. Bok published pictures of houses and plans. Entire colonies of these houses have been built. He printed photographs of the inside of houses, giving instances of good and bad taste in furniture. These methods raised the circulation of the journal to one million copies a month. Then he sought to put good pictures into the homes. Over 80,000 persons visited the exhibits of pictures in four leading cities. Next he produced in the original colors the world's finest pictures, and the success of this plan resulted in seventy million of them getting into American homes.

It is impossible in this sketch to enumerate the

many other methods by which Mr. Bok improved living conditions in the United States, as, for instance, the banishment of the public drinking cup through the influence of the articles he published.

The secret of Mr. Bok's success in life was due to the fact that he "used every rung in the ladder as a rung to the next higher. He always gave more than his particular position or salary asked for. He never worked by the clock but always by the job and he saw that his work was well done regardless of the time it took to do it." Bok was a man of strong convictions, and when he felt he was doing the right and helpful thing by exposing some wrong custom or fashion, he did not hesitate to continue even if the magazine lost subscriptions. At one time he stated that 7500 subscriptions were dropped because of his exposure of an evil which later his readers acknowledged to be right.

At the end of thirty years of editorship Mr. Bok retired from the control of the magazine that he might be free to render public service. In the last issue before he left, it was oversold with an edition of over two million copies. He closed his work with an exposition of Americanization which was peculiarly gratifying to him as a foreign-born editor. He says himself that he "owes to America the most priceless gift that

any nation can offer, that of opportunity. In no other country in the world is the moral conception so clear and true as in America, and no people will ever give a larger and more permanent reward to the man whose effort for the public has its roots in honor and truth. 'The sky is the limit' to the foreign born who comes to America endowed with honest endeavor, ceaseless industry, and the ability to carry through. And I ask no greater privilege than to be allowed to live to see my potential America become actual. It is a part in trying to shape that America, and the opportunity to work in that America when it comes, that I ask in return for what I owe to her. A greater privilege no man can have."

THE MAN WHO SAVED THE UNION NAVY IN 1862

JOHN ERICSSON

JOHN ERICSSON began inventing things early in life for when he was only nine years old and had no tools but a quill and a pencil, he made compasses of birchwood with needles inserted in the end of the legs; he turned a pair of steel tweezers into a drawing pen and robbed his mother's fur coat of hairs sufficient to make two small paint brushes. And all this for the sake of the designs and drawings to which he gave much time even as a boy.

His earliest years were spent among the machinery of the iron mine and foundry of which his father was superintendent, and he eagerly learned all he could about it. Then his father removed to Forsvik, a hundred miles away from his first home among the wild mountains and dark forests of northern Sweden, only six degrees from the Arctic Circle. At Forsvik John had the opportunity to have lessons in chemistry, algebra, geometry, French and Latin, from men of ability who came from England to assist

in the building of the Gotha ship canal. He learned to speak English well through talking with these men, and being already a good draftsman he soon gained a knowledge of field drawing from a friend. From his Flemish-Scotch mother he inherited tireless energy and strong will-power.

During the winter of 1813, when he was ten years old, John built a model of a sawmill, entirely of wood except for the bandsaw which he filed from a watch spring, and the crank which operated it he made out of a tin spoon. The tools he used for this purpose were a file borrowed from a blacksmith, a gimlet and a jack-knife. When the water was turned into the little water wheel, the model worked perfectly. He next proceeded to make a pumping engine turn by a windmill, but as he had never seen one he did not know how to make it turn according to the changing wind. But it happened that his father in describing one he had seen, used the words, "ball and socket." This was sufficient to give the boy the needed information and he speedily added this device where the connecting rod of the driving crank joined the pumping lever, so making his engine complete. Thus as a boy of ten he started on his great career of invention.

Evidence of his unusual ability in another direction was given when at the age of fourteen

he was put in charge of six hundred Swedish troops working as laborers on the ship canal. He was so small of stature that he had to stand on a stool to reach the eye of his levelling instrument.

When his father died he felt he must help his mother and sister financially, and he decided to enter the Swedish army. He was soon acknowledged to be an expert in everything connected with the science of artillery. It might have been imagined that Ericsson had now given up the inventions in which he had been so interested but he was really making a special study of guns and explosives, and gaining a broad knowledge of naval and military practice which proved of value to him in later life.

In 1826 he turned definitely back to an inventor's career and went to England to introduce a new type of engine with a working cylinder in which the horsepower should be furnished by flame instead of steam. In Sweden where the fuel used was wood, it had been a success but in England where coal was in use it was a failure. Ericsson therefore entered the employ of John Braithwaite of London, a master engineer and manufacturer, who recognizing the abilities of the young man soon took him into partnership.

This gave him a fine chance to develop

his ideas. He installed an air compressor as motive power for a pump at considerable distance, the first occasion in which compressed air had been used in such a way. From his knowledge of a blacksmith increasing heat by means of a bellows, he invented a centrifugal blower, a device which introduced the method by which a mechanical draft increases the value of all fuels and makes it possible to burn thoroughly refuse material and low-grade peats.

Ericsson built in 1829 for the ship *Victory* which Captain Ross commanded on his Arctic expedition, a surface condenser for the steam boiler, an invention which is to-day considered indispensable on all steamships and vessels of war. He also devised for that ship the plan now universal on board ships of war, of protecting machinery from the enemy's fire by placing it below the waterline. The first steam fire engine, a portable one, which threw streams of water over the tall chimney of a London brewery, was invented by him in 1829, but the city authorities could see no advantage in it and actually stuck for years afterward to pumping by hand.

The next thing which attracted Ericsson's attention was a competition with George Stephenson who had been building small locomotives for years for use in coal mines. The contest was to be for the best steam locomotive that could

draw a weight of twenty tons at the rate of ten miles an hour, and the prize offered was $2500. So small do these efforts seem nowadays and yet they were the beginnings of great things. Ericsson had never built a locomotive and he had not known of the competition until within five weeks of the time set for its completion, but that did not deter him from attempting the task. *The Rocket* built by Stephenson won the prize, nevertheless the *Novelty* designed by Ericsson was notable for the speed it attained of thirty miles an hour that was really surprising for those days. His locomotive went steadily on its track because he had used a blowing machine for his chimney while Stephenson's swayed from side to side, he having employed a steam blast.

In 1833 he began experiments that led to distinctive success. Others had introduced the screw propeller for steam-driven vessels, but in 1835 he invented a rotary propeller that marked the end of the days of sailing vessels. He built a steamboat forty-five feet long that moved at ten miles an hour, with a rotary propeller, and invited the Lords of the British Admiralty to take a trip in it on the Thames River. They accepted but were unconvinced by the plain proof submitted to them. Their verdict was thus voiced by the Surveyor of the Royal Navy: "Even if the propeller screw has the power to

propel the vessel, it would be found altogether useless in practice. because the power being applied at the stern, it would be absolutely impossible to make the vessel steer." It was years before England decided to adopt the screw propeller although it is now everywhere used.

The American consul at Liverpool was much interested in the trip of this vessel which had been named after him, the Francis B. Ogden, and he introduced Ericsson to his friend, Robert Stockton, of the United States Navy, who immediately ordered two iron steamboats to be fitted with Ericsson's machinery and propellers. The trial trip of one of them so impressed those who witnessed it that the *London Times* prophesied "an important change in steam navigation." This same ship was the first screw-driven steamship that ever crossed the Atlantic, going from Gravesend, England, April 13, 1839, to New York City, successfully.

Upon Stockton's assurance that he would be permitted to build one of the new warships ordered by the United States government, Ericsson sailed for America, November 23, 1839. There were no steam vessels in the navy when Ericsson arrived here and it was not until 1842 that he received orders to build the *Princeton,* a small iron war-ship of 600 tons, which marked notable progress in naval construction for speed,

and its equipment of screw propeller, a gun carriage of new design, and cannon reinforced by steel hoops shrunk onto the breech of the gun, which is to-day a feature of all modern high-power naval guns.

His versatility enabled him to produce inventions of various kinds. Among them was a thermometer that registered the degree to which heat expanded confined gas. This has been found to be the most satisfactory instrument ever invented. He also perfected a caloric engine in which hot air is used as the motive power in place of steam. Within ten years over 2000 of these engines were sold.

October 28, 1848, Ericsson became a naturalized citizen of the United States. In 1861 when civil war began, Ericsson took the side of the Union, for to a man of his type slavery of one man by another was inconceivable. At this time the United States navy was composed entirely of wooden vessels, but early in the war the Confederates began the construction of ships heavily armored with iron. The frigate, the *Merrimac,* which had been sunk in the Norfolk navy yard, was raised and encased in iron plates.

On September 14, Ericsson went to Washington and laid before the naval department his plans for a ship to be called the *Monitor,* which were so simple that it could be executed within

three months from the time the work was begun. Receiving a contract for her construction, the keel was laid October 25, and she was launched January 30. She was 172 feet in length, her side armor was five inches thick, her deck plating one inch. In the center of the deck was a revolving turret protected by eight inches of iron plating. On it were two heavy guns. The vessel was operated by a steam engine placed below the waterline and therefore well protected from the enemy's fire. The *Monitor* arrived in Hampton Roads March 8, after a stormy passage. The next day she fought the *Merrimac* for three hours and worsted her, so that she withdrew. In 1872 her commander, Gatesby Jones, remarked to Alban C. Stimers, chief engineer of the *Monitor,* "The war has been over a good while now and I think there can be no harm in saying to you that if you had hit us twice more as well as you did the last two shots you fired, you would have sunk us."

So the Federal blockade remained unbroken although the *Merrimac* had destroyed two of its vessels the day before her encounter with the *Monitor.* Ericsson had saved the Union, and much rejoicing was felt throughout the North. Congratulations from State Legislatures, chambers of commerce and public meetings poured in to Ericsson and the ship officers. On March

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JOHN ERICSSON

28, 1862, Congress passed a joint resolution acknowledging the enterprise, skill and foresight of John Ericsson displayed in the construction of the *Monitor* which had saved the Union fleet from destruction, and according him thanks for his great service to the nation. In 1882 Senator Platt of Connecticut proposed that Congress should present Ericsson with some material recognition of his services but the inventor declined, saying "Nothing could induce me to accept remuneration from the United States for the *Monitor* invention once presented by me as my contribution to the glorious Union cause, the triumph of which freed four million bondmen."

During the years following the war Ericsson was called upon to build several vessels of the *Monitor* type. This he did at personal sacrifice and much financial loss. Later he brought out many other remarkable inventions, investing in his experiments over a hundred thousand dollars. For his native land, Sweden, he planned means of defense for her coasts and made many contributions towards it. At the request of Spain he arranged a scheme of gunboats to help her in her war against the Cuban insurgents; in less than five months he launched and completed the thirtieth and last of these gunboats.

Honors of many kinds came to him in his later years. Sweden, the land of his birth, specially

honored him in every way possible, and when his old neighbors at Langbanshyttan unveiled in 1867 a shaft of granite bearing the words, "John Ericsson was born here on the 31st of July, 1803," he was much moved. He learned that an old playmate was present on that occasion and he sent him a gold watch inscribed "To Jonas Olesen from his old playmate, John Ericsson." He was troubled over the distress from the famine in Sweden and sent $5,600 for the purchase of grain best suited to its soil. On his death in 1889, in response to the desire of the Swedish nation the United States Government sent the cruiser *Baltimore* to bear the remains of her famous son back to his native land.

A SCOTCH-AMERICAN PHILANTHROPIST

ANDREW CARNEGIE

FULL of fascinating interest is the life story of the boy who at twelve years of age entered a cotton factory as bobbin boy at $1.20 a week. Without any school education, by his own alertness to seize and make the most of every opportunity that came his way, he rose rapidly to world-wide fame as a philanthropist who distributed millions of dollars for the benefit of others.

Andrew Carnegie was born at Dunfermline, in Scotland, November 25, 1835. His father, in consequence of the introduction of the power loom, was the last in a long succession of skilled hand weavers of damask. Thus deprived of his employment, he was compelled to seek a new home and he decided to do so in the United States of America. He and his wife, with their two boys, settled in one of the centers of the cotton manufacture—Allegheny City, where they lived in a neighborhood called Barefoot Square, Slabtown. William Carnegie and his son Andrew,

found work in the same factory. The latter was soon promoted to the position of engineer's assistant and given the weekly wage of $1.80 for twelve hours a day of hard labor.

From this he was transferred at the age of fourteen to be district messenger for the telegraph company. His appreciation of the change was expressed by his saying that he was the happiest boy alive on finding himself in a clean office with books, pens and pencils around him. One day Andrew was told to wait after the other employees had gone. He was puzzled and anxious at the request until the manager said: "I have noticed your work and consider that you are worth more than the other boys, so instead of $11.35 a month I am giving you $13.25."

Before he had been long at his new place he asked his employer to teach him to telegraph. His freshly acquired knowledge was quickly put to good use, for one morning a message was signalled from Philadelphia before the operator had come into the office. Andrew took the message accurately, and by thus showing his willingness to help where he could, he obtained the post of telegraph operator at a salary of three hundred dollars a year. He was not however spending all his energies upon earning a living and pushing ahead for promotion. He was a diligent reader of good books, through the kindness of

Colonel Anderson who offered a few boys, among whom was young Carnegie, the opportunity to visit his private library each week-end and take certain books home with them. To this kind action he attributed his own benefactions in later years, in the establishing of libraries.

Thomas A. Scott, divisional superintendent of the Pennsylvania Railroad at Pittsburgh, became interested in Andrew and gave him a position as operator in his own office. An accident was reported one morning while the superintendent was absent. The consequent blockade was likely to cause the road considerable trouble if the situation was not relieved at once. Andrew knew exactly what his chief would do if he were there, so he assumed the responsibility and signed the superintendent's name to the orders that would straighten out the trouble and set the trains again in motion. When he was sixteen Mr. Scott one day proposed to him to invest six hundred dollars in ten shares of Adams Express Company's stock, offering to loan him one hundred dollars if he could find five hundred. His father having died, Andrew told his mother, and she at once decided that their house must be mortgaged to allow her son to accept the superintendent's suggestion. A proud boy was he when he received a check for his first dividend payment.

Thomas T. Woodruff, inventor of the first

sleeping car, having shown his model to Carnegie, was introduced by him to Colonel Scott who had been advanced to the position of vice-president of the railroad, Andrew succeeding him as divisional superintendent. Organization of the Woodruff Sleeping Car Company resulted and Carnegie took several shares, borrowing the money from a bank and giving his first note to repay the loan at fifteen dollars a month. By this investment and another in oil, he made his first large profits. At the beginning of the Civil War Carnegie was put in charge of the military railroad and government telegraph where he did important and valuable work. At the opening of the period of reconstruction, his quick perceptions recognized the large future which was before the iron business, and he lost no time in organizing a manufacturing concern, The Keystone Bridge Company.

At the age of thirty-three he visited England. At this time there were fifty-nine Bessemer steel plants in Europe while there were only three in the United States. England was mistress of the iron business of the world, but it was not long before Carnegie brought about a reversal of affairs. He saw the economic advantages of the Bessemer process and upon his return home, introduced it into his mills and revolutionized the industry. Within a few months he was controlling seven great plants operating within five miles of Pitts-

burgh. Immense railroad development required rails and structural iron, and the profits became very large.

His optimism was unconquerable and he was intensely practical; he had unlimited faith in his own ability to carry out his purposes. Certain business interests sought to prevent the rapid development of his manufacturing concerns, but Carnegie met that action by declaring that if they did not sell him iron ore and coal at the right prices he would provide his own supplies; and he made good his words. In 1889 he invited Henry Clay Frick who at that time controlled the coke-making industry, to join forces with him. He consented, and the result was that the Carnegie Companies soon "owned and controlled mines producing 6,000,000 tons of ore annually; 40,000 acres of coal land and 12,000 coke ovens; steamship lines for transporting ore to Lake Erie ports; docks for handling ore and coal and a railroad from Lake Erie to Pittsburgh; 70,000 acres of natural gas territory with two hundred miles of pipe line; nineteen blast furnaces and five steel mills producing and finishing 3,250,000 tons of steel annually. The payroll exceeded $18,000,000 per year."

It is remarkable that a man who had no technical knowledge or experience in steel manufacturing should have accomplished building up

so great a business so successfully. The secret seems to lie in his selection of men who were skilled in the necessary arts and sciences, and enlisting their loyal support by calling out their best efforts. At the memorial service for Mr. Carnegie, held in Carnegie Music Hall, Pittsburgh, Charles M. Schwab, who worked with Carnegie for forty years, spoke particularly of this characteristic of his and quoted him as saying, "Always remember that good business is never done except in a happy frame of mind." Mr. Schwab told an interesting incident which revealed a prominent trait in Carnegie's character. A man who had done great injury to him came to Mr. Schwab and told him things were going badly with him and spoke of the wrong he had done Mr. Carnegie. Mr. Schwab replied: "You mustn't tell me about it: go and tell Mr. Carnegie."

"Oh," he said, "he will not receive me."

"Yes, he will; just go and tell him what you have told me."

And he did, and Mr. Carnegie put his arms around his shoulders, and said, "I am glad to see my old friend come back here again, and we will be better friends than ever before." And as a matter of fact they were.

To one of his workmen, Morgan Harris, foreman at the Braddock works, Carnegie said one

day, "Morgan, I am glad to see you. You are one of the best workmen and one of the most straightforward men that it has ever been my pleasure to know. I am honored to have you associated with me."

Another marked characteristic of his was that he considered nothing too expensive if it was for the perfecting of his undertaking. "He was the first steel maker in the country who flung good machinery on the scrap heap because something better had been invented. He was the first to employ a salaried chemist and to appreciate science in its relation to manufacturing." The Carnegie policy was to rank improvements above dividends. At a time when money was not too plentiful in the Carnegie Company, Mr. Schwab had asked permission to put up a new converting mill. It was built and Mr. Carnegie came out to see it. He noticed a look of disatisfaction and questioned Mr. Schwab as to what was wrong. The latter replied: "It is built just as I told you it would be, and we have reduced our costs just as I said we would, but there is one thing recently discovered that if we had it to do all over again, I would introduce and I'm sure it would result in further economies." Mr. Carnegie said: "Can you change this work?" "No, it would mean tearing this down and rebuilding it." "Well," he replied, "then that's the right thing to do. It

is only a fool that will not profit by anything that may have been overlooked and discovered after the work is done. Tear it down and do it over again." It had been running only two months but it was rebuilt and the return from the money thus expended repaid the company many times over.

Every workman in the company was asked to deposit part of his earnings, not exceeding $2,000, and was given six per cent. interest, which was then a high rate. Many a workman who rendered exceptional service was taken into partnership. For Mr. Carnegie believed in service emphatically. To an interviewer he said: "In the final aristocracy the one question will be, what has the man done for his fellows? Where has he shown generosity and self-abnegation?" According to his own statement his methods of managing his great business were as follows: first, honesty; then industry; then concentration. "I do not think that any one man can make a success of a business now-a-days. I'm sure I never could have done so without partners, of whom I have thirty-two—the brightest and the cleverest young fellows in the world—all equal to each other as the members of a cabinet are equal. The chief must only be first among equals." In his book, "The Empire of Business," he concludes that "capital, business ability and labor must be

united, and that he who seeks to sow seeds of disunion among them is the enemy of all three."

And now began for Andrew Carnegie the happiest part of his life. He was happier in giving away his wealth than he had been in acquiring it. His first act was to establish a great fund, the income of which was to be used in caring for aged employees and those dependent upon them, in the industrial concerns with which he had been connected. The roll of his private charities showed hundreds of pensioners of whom he never spoke except confidentially. Having derived all the education he had, from the reading of books, he now sought to put the use of them within reach of everybody. He therefore contributed for public libraries about $60,000,000. He gave $24,000,000 to Carnegie Institute at Pittsburgh; $22,000,000 to Carnegie Institute at Washington, D. C. He was loyal to his native land, giving $10,000,000 to Scotch universities, and in Dunfermline, his birthplace, he established a trust fund of $2,500,000. In Pittsburgh where he had made his first great success in life, he did much for its development. In 1892, when there was lack of employment in the city, he gave $250,000 to duplicate the gifts of others, to provide work by the laying out of parks and roads. He provided a library system for Pittsburgh, adding a fine arts department, a museum, school for train-

ing librarians, a hall for free organ recitals, and a system of technical schools constituting the Carnegie School of Technology. He loved music intensely and aided 6,879 churches to secure organs, over 4,000 of them being in the United States.

He hated war and did much to foster the cause of world peace. With the purpose of teaching that heroism is not limited to times of war, he instituted the Carnegie Fund to reward heroism in civil life. This fund is today caring for hundreds of widows and educating fatherless children, in addition to rewarding living heroes.

During the later years of his life honors came to him. He was made Lord Rector of the University of St. Andrew, in 1903, and in 1905 received the degree of Doctor of Laws from that institution. In 1907 France appointed him a commander of the Legion of Honor, and the Queen of Holland conferred on him the Order of Orange-Nassau. In his adopted country he was made an honorary alumnus of Princeton. Mr. Carnegie was never ashamed of the poverty of his early life, and his democratic spirit was indicated by the crest which he himself designed for his own use. It bore a weaver's shuttle, a crown turned upside down, surmounted by a liberty cap and supported by the flags of Scotland and the United States. It had on it the motto, "Death to Privilege."

After his death Eugene Schneider, head of the Creusot Steel Works in France, wrote as follows of Mr. Carnegie: "He gave the little recognized contribution to the progress of the world, namely, that he popularized steel, and showed that cheap steel is one of the greatest gifts ever produced for mankind. . . . He has been the world's biggest educator, and his endowments leave the same benefit for posterity."

A FRENCH-AMERICAN WHO AIDED THE UNITED STATES

STEPHEN GIRARD

IN 1776, during the War of Independence between this country and Great Britain, a young Frenchman, captain of a small trading vessel bound from New Orleans to a Canadian port, found himself lost in a fog off the coast of Delaware Bay. His flag of distress brought to his aid an American captain who told him there was danger of his ship being seized by the British.

"What shall I do?" asked the Frenchman.

"You have no choice but to get into Philadelphia as soon as possible."

"How can I get there? I have no pilot."

A pilot was found who demanded five dollars for the job, but the Frenchman had not that amount of money with him. The American captain went security for him and so the Frenchman, Stephen Girard, landed in Philadelphia where he decided to make his home, and which, through this simple incident, benefited so greatly in after years by his large contributions to her institutions.

Stephen Girard was born in 1750 in Bordeaux, in France, where his father was a prosperous merchant. When he was twelve years old his mother died. He had but little education but his father's connection with the trade with the West Indies gave him a liking for the sea, and at the age of fourteen he shipped as a cabin boy on a vessel bound for Port-au-Prince. Nine years later he was licensed to "act as captain, master, or pilot of any merchant ship."

In 1774 he had the misfortune to lose heavily in disposing of the goods he carried to the West Indian islands, a loss he knew he could not at that time make good to the Bordeaux merchants to whom he was indebted for his cargo. Fearing to return lest he be imprisoned for debt, he obtained his discharge from his ship and started trading for himself, sailing for New York City with a small cargo of sugar and coffee. He steadily added to his profits on each voyage he took between that city and San Domingo. Throughout his whole life he was always known as a man of scrupulous honesty and in later years he paid in full all he owed to the Bordeaux merchants.

In 1776 he found himself in Philadelphia as described at the opening of our story and stayed there during the remainder of the war. At its conclusion Stephen Girard became owner of a

small vessel called the *Twin Brothers* which took flour and lumber to Le Cap in San Domingo where his brother was living with whom he had formed a partnership. On its return voyage it carried molasses, sugar, coffee and soap. He made large profits and continued the trips.

In 1778 Girard became a citizen of the United States and he began to share in the commercial opportunities which opened up under the presidency of George Washington. France had suffered from crop failures and was offering a premium to any one who would send her wheat. Girard was one of the first to start his own ships and others he chartered, with grain for France and a big profit was gained.

And now for a time the successful money-maker became the humanitarian, for from San Domingo was imported the yellow fever and it quickly spread through Philadelphia. Few hospitals existed in those days and the one in that city was in bad condition. Girard was put on a committee to aid but he far exceeded his duties. He and a fellow townsman, Peter Helm, immediately took charge of the hospital and worked night and day among the sick and dying. The following mention of their self-sacrificing labors is quoted from an account of the plague; "Stephen Girard, a French merchant, long resident here, and Peter Helm, born here of German

parents, men whose names and services should never be forgotten, had the humanity and courage constantly to attend the hospital and not only see that the nurses did their duties, but they actually performed many of the most dangerous, and at the same time humiliating services for the sick with their own hands."

During the war between Great Britain and France in 1793, the law of nations was disregarded, and Girard lost five ships that were seized by the British. Again in 1810 he lost another five by their seizure by the Danes. Unable to continue trade with Europe, he turned his vessels to South America and China, sending them to Valparaiso and Canton. In 1812 tea was selling at war prices, what he had on hand he sold for four times its cost in China, thus making some half million dollars.

Once again did war interfere with Girard's business, so at the age of sixty-three he opened a bank with a capital of over a million dollars. This gave him opportunity to render an important service to his adopted country. War expenses had strained the financial resources of the United States and it became necessary for the government to borrow money. Twice was the effort made to secure the required amount by a loan but less than six million dollars was subscribed and ten million more was needed.

With two other wealthy men Girard offered to subscribe this amount and thus he saved from embarrassment the country where he had been so successful in making a fortune. This war brought heavy losses to him in the having to pay a ransom of $180,000 for his ship *Montesquieu* and also by the loss of his vessel, *Good Friend,* nevertheless he was still a very wealthy man for in 1830 he paid $30,000 for coal lands which today have an almost unbelievable value, and in all he owned in real estate, 200,370 acres.

When in 1831 Stephen Girard reached the end of his long and busy life, his will contained many charitable bequests. Up to that time he had acquired the reputation of being a man who rarely gave away money. He always scrupuously paid the last cent he owed and he likewise exacted from others the last one due to himself. But he was a morose man who shut himself away from all social life owing probably to the fact that early in his young manhood he had to endure much ridicule because of his peculiar appearance due to the loss of one eye. He lived for over fifty years in an inconvenient house near the wharves. His clothes were old-fashioned in style and often shabby. His chief delight seemed to be the making of money but he certainly did not spend it upon himself. He took real satisfaction however in his farm just outside the city

where in later life he spent a portion of each day.

It is worth while to find out what Stephen Girard did with his immense wealth. The greater portion of it was left for the founding and maintenance of a college for poor orphan boys to provide them with a better education and a more comfortable living than they would usually receive from the public funds. Although he would not permit any minister or missionary to hold office of any kind within the college or even to be admitted inside its walls, because he did not wish the minds of the boys to be influenced by sectarian controversy, yet he did strictly require that all instructors should instil into the minds of the scholars the purest principles of morality, reverence, honesty and obedience. Hundreds of boys who otherwise would have had no opportunity for an education have graduated from Girard college.

To his surviving brother and to eleven nieces he left four or five thousand dollars apiece; to one niece who had a large family he gave $60,000. To his captains who had taken two voyages in his ships and had safely brought them into port, he gave $1,500 each, and to other servants and dependents similar amounts. Several charitable institutions in Philadelphia received gifts; the city fund for relief of the poor in winter, $10,000, and $500,000 went for the improvement of Philadelphia's streets and buildings.

THE BUILDER OF THE PANAMA CANAL

GEORGE WASHINGTON GOETHALS

EARLY in the nineteenth century there came to America from Holland a man and his wife, whose family name was the Dutch translation of a nickname given to a Roman ancestor. For his fighting qualities he had been called Boni Coli, meaning good or stiff neck. Rewarded for his valor by the grant of land in Holland, his new name, Goet Hals, became that of all his descendants. And many of them have lived up to its significance. This is particularly true of the son of these Dutch immigrants, who was born in Brooklyn in 1858. Americanized, the name is pronounced Go-thals.

George Washington, as these Hollanders, in patriotic devotion to their adopted country, called their son, began work as an errand boy in a broker's office at the age of eleven. At fourteen he entered the College of the City of New York and became cashier and bookkeeper in a market for five dollars a week, giving his time after school and on Saturdays.

In 1880 he graduated from the Military Academy at West Point, ranking second in a class of fifty-four men. He studied in the Engineering School of Application at Willett's Point for two years. Then he was chief engineer on government work in the Department of Columbia, which includes the States of Idaho, Washington, and Oregon, for two years, and in charge of dikes and dams on the Ohio River for one year, after which he was engaged as assistant instructor and professor in civil and military engineering at West Point. Five years were spent in government duty in Tennessee, and the four years following as assistant chief engineer of the United States Army. When the Spanish War began he was made chief engineer of the First Army Corps, and went to Porto Rico. In the fall of 1900 he was promoted to the rank of major and ordered to Newport, R. I., to take charge of river and harbor fortifications. He regretted these frequent changes and would have preferred to be allowed "to stay on the job until the day of results." But the variety doubtless better fitted him for the great achievement of his life, in which his wish was fulfilled. The testimony of Gen. J. M. Wilson indicates the thoroughness with which he did all his work: "Whatever I gave him to do, I relieved my mind of it. I knew it would be done right."

In April, 1907, President Roosevelt appointed Lieutenant-Colonel Goethals chairman of the Isthmian Canal Commission and chief engineer of the Panama Canal. It was a tremendous task to which he was called. For three centuries surveys had been made and various routes considered by Spain, France, Columbia, and the United States, with the object of finding a much-needed link between the Atlantic and Pacific oceans. In 1903 by treaty and payment of ten million dollars the United States became the possessor of the strip of land ten miles wide, running from ocean to ocean, which forms the Canal Zone.

An Isthmian Canal Commission had been appointed by President Roosevelt in March, 1904, with John F. Wallace as chief engineer of the canal. He was succeeded by John F. Stevens. When in 1907 Colonel Goethals took hold of the gigantic task of building the Panama Canal valuable preparatory work had been done. American civilization had been introduced into a tropical jungle, disease had been overcome, sewers, water-works, paved streets supplied, homes for employees provided, commissary and hotel systems organized, and transportation facilities made satisfactory. A police force, courts, post-office, and fire department had been instituted.

The Panama Canal has been called the greatest

engineering work in the whole world. Important changes in the plans were made within eighteen months after the colonel took charge, so that it became a far more tremendous undertaking than as originally planned. The canal is forty-seven miles in length, and occupies ninety-six square miles. The Culebra Cut, nine miles long, has been an immense piece of excavation. With the exception of one month in 1908, one million cubic yards of earth were removed each month from December, 1907, until the cut was completed. Other big tasks were the building of a dozen huge locks, each containing more solid concrete than there is stone in the great pyramid of Cheops.

In these locks were erected forty-seven pairs of steel gates, each as tall as a six-story building. For power to move the elaborate machinery that would open and close these gates and tow ships through the locks, the Chagres River was turned into the concrete-lined spillway of the Gatun Dam. In addition fourteen million dollars' worth of fortifications had to be built.

A remarkable characteristic of the chief engineer was his detailed knowledge. "He was master of his business." He made himself familiar with every part of the work. When Congressional committees came to inspect and criticize, if division engineers or department officers were un-

able to answer some question of detail, Colonel Goethals was ready with the desired information, showing he really had a more intimate knowledge of each special part of the work than the man at its head.

He was not only a great engineer; he excelled as an administrator. He is quoted as saying: "The canal will build itself if we can handle the men." That this was no easy task is evident when we realize what a heterogeneous crowd of men he had to deal with, for not less than forty-five languages were spoken in the Canal Zone. He always required strict obedience to his orders. A few days after he had taken charge of affairs, a superintendent of a certain branch of the work called.

"I received your letter, colonel," was his opening remark.

"My letter," replied the chief engineer, "I have sent you no letter."

"Yes, a letter about the work down there."

"Oh, you mean your orders."

"Well, yes; I thought I would come and talk it over with you."

The response of Colonel Goethals was illuminating: "I shall be glad to hear your views, but bear in mind that you have only to carry out my orders. I take responsibility for the work itself."

It was not his way to threaten any conse-

quences of failure to obey his orders. The men soon learned, however, that disobedience meant dismissal. And when they came to know him, they recognized the justice of his actions. His comprehensive knowledge of every detail and the personal attention he gave to all parts of the work commanded a respect for his decisions.

No man worked harder than he did. He was always on the job, and sometimes, to use his own phrase, he "took the canal to bed" with him. He was as absolutely fair as mortal man could be. Testimony from employees shows this: "He talked the whole thing over with me and when we got through I saw that I had no grievance. Oh, he's square, I tell you. He talks the thing right out with you and doesn't dodge." "The squarest boss I ever worked for," said a member of the Brotherhood of Engineers.

As day by day the chief engineer went from place to place, inspecting the progress of the work, it was his habit to greet every man, woman, and child he met, white and black. Many of them he called by name. In friendly fashion he would talk over the work with the men and he so inspired them that they worked harder and better because he had been with them. His own words are significant: "To successfully accomplish anything it is necessary, not only that you shall give it the best that is in you, but

that you should obtain for it the best there is in those who are under your guidance." The result was evident. The men were ready to give every ounce they had for the colonel because the colonel believed in them and they believed in him. He made them feel it was their job, their responsibility, their trust. He said: "We are all working together for a common cause and we are alike wage-earners." He encouraged perseverance by giving a medal to every man who had been on the job for two years, and a bar was placed on it for every additional two years.

Colonel Goethals positively forbade the use of profane and abusive language by foremen or those in authority when addressing subordinates, because such conduct engendered feelings that lessened efficiency.

A notable characteristic of George Washington Goethals is his genuine desire to keep himself in the background. On the occasion when most men in his position would have planned a big demonstration, he permitted nothing of the kind; not even when the first vessel passed through the Gatun locks on September 26, 1913, or when the canal was thrown open to the commerce of the world on August 15, 1914. Instead of being on the prow or the bridge of the first vessel passing from ocean to ocean,

as the grand mogul of the event, he was down on the locks, watching the operating machinery. To the Congressman who introduced in the House of Representatives a bill providing for his promotion to the rank of major-general of the army as honor due him for the building of the canal, he wrote:

"I am not insensible to the honor to be conferred upon me by the bill and appreciate the motives friendly to myself that inspired its introduction, . . . nevertheless, it has always been my position that the army officers assigned to the canal are amply compensated, not only by the additional pay they receive but by the honor of being associated with the undertaking. . . . We are doing nothing more than that for which we have been educated and trained by the government. According to my view we are not deserving of recognition or reward for our services here, and I do not think that I or others of the commission should be singled out for honors. Neither do I think that army officers should receive any special consideration for their service here in contradistinction to the civilian employees."

In January, 1914, Colonel Goethals was appointed by President Wilson the first governor of the Canal Zone. Honorary degrees were conferred on him by Harvard, Yale, and Columbia

universities. President Lowell, of Harvard, in conferring the honorary degree of LL. D., spoke as follows:

"George Washington Goethals, a soldier who has set a standard for the conduct of civic works; an administrator who has maintained security and order among multitudes of workmen in the tropics; an engineer who has completed the vast design of uniting the oceans through a peak in Darien."

And to this man whose personal appearance indicates the typical Hollander, a gold medal was presented by President Wilson, thus inscribed:

"The special medal of the National Geographic Society is awarded to George Washington Goethals, to whose ability and patriotism the world owes the construction of the Panama Canal."

Percy MacKaye has effectively described his achievement in the following lines:

A man went down to Panama
Where many a man has died,
To slit the sliding mountains
And lift the eternal tide;
A man stood up in Panama
And the mountains stood aside.

"THE LABOR STATESMAN OF THE WORLD"

SAMUEL GOMPERS

A BOY, aged thirteen, in 1863, entered the United States as an immigrant from London. His only schooling was obtained in a day school from his sixth to his tenth year, with four years of evening school later. But he was ever eager to learn, often forgetting to eat in his absorption in his books. Today he is the most influential man in the Labor movement and he has been given the title of "Labor Statesman of the World."

Formerly an object of supercilious contempt, laughed at by capitalists and government officials for his visions of the future status of the working man and his untiring efforts to secure fair treatment for him, today Mr. Gompers, as president of the American Federation of Labor, is the acknowledged leader of nearly three million men organized in labor unions. Not very long ago the London *Times* devoted an editorial to an eulogy of him, and another "influential journal" has said that "no man in the United States except

President Wilson wields such power as does Mr. Gompers." Here is an illustration; A former Commissioner of Indian Affairs prepared plans for a series of public improvements on a certain reservation, purposing to use Indian labor at the current hourly wage. As most of the red men had to come a long distance from home, it was found necessary to substitute a ten-hour day for the legal eight, with only five working days in the week. Some one called attention to this plan as a violation of the statute limiting government employees. The Commissioner therefore endeavored to procure an amendment making the statute non-applicable to work done by Indians on their own reservations for their own benefit. Bringing his measure before the appropriate Congressional Committee he was asked, "Have you seen Gompers?" There appeared to be no alternative, so Gompers was seen and he promptly vetoed the project which therefore had to be abandoned.

As the Commissioner's plan obeyed the law in spirit by lessening the number of working days, doubtless many persons would consider that a good plan for the Indians was unfortunately lost because of Mr. Gomper's literal adherence to his principles, even while they admire the staunchness of his fidelity.

Recently at a great gathering in Chicago,

attended by the governors of a dozen states, he received a hearty endorsement and appreciation of the work he had done to unite the labor leaders of Europe in whole-hearted support of the war.

It has been his quiet determination, his tenacity of purpose that has brought him to the place of honor and influence which he now holds. Although born in London in 1850 he is a Hollander by descent. He attributes to his mother, whose parents, he says, were highly educated, his own love of study and his desire to benefit his fellowmen.

His first impulse in the direction of the cause to which he has devoted his life, was received when as a boy he saw thousands of silk weavers in Spitalfields deprived by the introduction of machinery, of work in the trade to which their fathers and grandfathers had belonged for years, marching under banners declaring "We are starving." "Labor organization is the bulwark of democracy" is his theory and practical faith. He began early to work toward its realization. A cigar-maker, at fifteen, he helped to organize the first cigar-maker's union of New York. Ten years later he was elected its secretary. He also served as its president for six successive terms. For thirty-six years he worked at his trade, afterwards devoting his time and strength to the betterment of the condition of the working classes.

In 1881 his local union took part in the formation of a national organization. It was a day of small beginnings, for there were but seven delegates, of whom Mr. Gompers was one. He has been its president continuously with the exception of one term. Under his efficiency and personal power its membership is now nearly three million. At an annual meeting of the American Federation of Labor in 1908 his rule of action, "Partisan to no political party but partisan to a principle" was approved by the organization. It was also in accord with him when he urged upon working people "the imperative necessity and solemn duty of resisting by all means at their command the tendency on the part of the employers and princes of finance to establish in some form or other in this country political and judicial despotism."

When the war began his devotion to democracy inspired him with enthusiasm for the cause of the Allies. He was eager to have Labor help America show herself to be efficient in war as in peace. It was an indication of the force of his personality that he secured from the Federation a pledge of undivided support in carrying forward the war to a successful conclusion, but he demonstrated also his skill as a strategist in demanding as a fundamental pre-requisite to coöperation, recognition by the government of

SAMUEL GOMPERS

employees as a group having common interests; thus maintaining the union principle. The result has been a closer relation between Labor and the Administration than had ever existed previously. It has been said that Mr. Gompers is a member of the Cabinet in all but the name. He furthered the creation of a Federal Department of Labor and it became the chief agency of the government for dealing with labor disputes relating to war-time production. Mr. Gomper's office was a center of great influence in supplying initiative for important decisions. In a speech at Buffalo President Wilson took occasion to speak of Gomper's "patriotic courage, his large vision, his statesman-like sense and mind that knew how to pull in harness."

For many years he endeavored to secure for labor unions exemption from the operation of the Sherman anti-trust act, and also from injunction by the courts of law, and he was finally successful. He argued that "business cannot be property and therefore whenever the courts issue injunctions which undertake to regulate our relations with our employers or those from whom we may or may not purchase commodities, such courts are trespassing upon relations which are personal relations and with which equity power has no concern."

Gompers is not a Socialist and it has been his

constant endeavor to keep the Federation of Labor from endorsing Socialistic policies. He frankly says that he is at variance with the philosophy of Socialism and its doctrines. "Economically they are unsound; socially they are wrong; industrially they are an impossibility." He does not approve of force or violence; despite his ardor for the success of the war for democracy, he is a pacifist, a peacemaker. His declaration to the Chicago Federation was thus worded: "We cannot win by thuggery or violence. Brutality only grows. If we had to win by that method, it would be better to lose. Violence and thuggery only hurt our movement." "When compulsion is used, only resentment is aroused and the end is not gained. Only thru moral suasion and appeal to men's reason can a movement succeed."

The I. W. W. receive no support from him for he does not agree with their theory that one class must be uprooted to give place to the other. Give the working men good wages, homes and living conditions and Mr. Gompers sees no occasion to disturb any one. "There would not have to be any labor unions if every employer were like Henry Ford" is his declaration.

His attitude in regard to the prohibition of liquor is to be regretted. That he should oppose a movement so evidently for the real good of the

laboring classes is surprising when one considers the sane position he has taken on other questions. The beneficial results already apparent, will lead him, it is to be hoped, to ally himself with a movement so manifestly improving the conditions of the working man by removing what has been a curse and hinderance to his prosperity.

The personality of Mr. Gompers is, of course, largely revealed in what has been already said of him, but it is interesting to have a pen picture of him. He is short and heavily built, with massive head and broad shoulders; his hair is long and gray, brushed back severely from his forehead. He wears spectacles over eyes that are keen but kindly. Determination and benignancy are both evident in his features. Englishmen are surprised that he did not match up to the press portraits of the labor boss; and noted that he did not wear any heavy gold chain or gaudy vest, or carry a half-chewed cigar stub tilting upward from his lips. He is quiet in manner and unobtrusive in appearance.

Deliberation is a prominent characteristic and he is cautious in the extreme. William Hard described him as going out on a new idea as cautiously as an elephant going over a new bridge. He has proved himself to be an incorruptible leader and a master strategist. His methods of accomplishing his aims are by prepar-

ation, patience, conciliation and delay. In debate he waits until his opponent has exhausted all his arguments and then adroitly Mr. Gompers successfully turns back the same arguments. He knows well how to concentrate all his efforts upon a single purpose; it is the secret of his brilliant career. He has suffered nothing to divert his mind from his one aim of helping the working man to better his condition. "Gomperian forcefulness" is the name given by one writer to his way of steadily pushing forward to his goal. An Englishman says: "The most persistent journalist cannot sidetrack him where he does not want to go. He quietly, so to speak, shunts himself back onto the main line, pushing the journalist before him."

For a man who has had little schooling it is remarkable that he has acquired such correct use of the English language. He is thoroughly familiar with the best literature in three languages besides English and he has unusual ability in the writing of pamphlets. He has lectured at Harvard, Cornell, Michigan, and Wisconsin universities.

Although now receiving a yearly salary of $7,000, as president of the Federation of Labor, Mr. Gompers is by no means even a well-to-do man, for he gives so largely to union men who are in need that his own family are sometimes

decidedly limited in their expenditures. For the first four years of his presidency he received nothing; for the next five, he had $1,200 a year. Knowing his poverty, previous to his taking office with the Federation, Governor Hill of New York offered him the post of Commissioner of Arbitration at a salary of $3,000 a year; yet, though he was earning scarcely twenty dollars a week, he refused the offer. Other advantageous positions were suggested to him, among them a nomination to congress and a place on the Industrial Commission, but one and all were declined, a striking evidence of his steadfast adherence to his life purpose. The records of a manufacturing association give proof that he was also offered $4,500 in cash and a sinecure for life, which was likewise refused. Is it any wonder that he is devotedly loved by hundreds, if not thousands of American working men?

A man of such self-sacrificing devotion to a cause surely deserves the honors that have lately come to him, both in this country and abroad, and congratulations on at least approaching the accomplishment of his desires so that he can say: "We are about to reap the harvest of what we sowed; a sowing of ungrudging sacrifice and brave devotion to the principles of humanity and brotherhood."

A JOYOUS MUSICIAN

PERCY ALDRIDGE GRAINGER

"THE only happy composer living," is the verdict of the British critic, Runciman, in commenting upon the Australian musician, Percy Aldridge Grainger, who, we understand, has now dropped the use of the middle name, after the fashion of Grieg and other prominent composers and musical men. According to all accounts he certainly seems to be an individual who is overflowing with vitality. The London *Times,* after he had attracted large audiences in England, said of him: "He plays as he writes, with an air of breezy enjoyment."

From his mother, it appears, he inherits this joyous temperament, and also his musical ability. His father passed on to his son a keen brain and an exactness of knowledge. Born in Melbourne, Australia, about forty years ago, Percy Grainger began to play at five years old, studying music with his mother until he was ten. For the next six years his education was carried on at Frankfort-on-Main, in Germany. When he was seventeen he went to London. He has

since played at hundreds of concerts in Great Britain, Norway, Sweden, Denmark, Germany, Switzerland, Russia, Austria, Finland, Holland, South Africa, Australia, and New Zealand. He has performed before fourteen royal personages.

In 1912 his compositions began to be published and quickly attracted attention. Even that well-established society, the London Philharmonic, and other leading organizations, took them up and engaged him as a soloist. His "Mock Morris" and "Shepherds Hey" each had more than five hundred specific performances in England alone in 1914. The London *Telegraph* gave its impressions thus: "Such humor and wit, such enthusiasm, such virility and such masterly musicianship are met with only on the rarest of occasions in a musician of any country."

Grainger has made exhaustive research into folk-song music. He has collected from the native music of Great Britain, Scandinavia, New Zealand and the South Seas some five hundred examples by the aid of a phonograph and by precise notation. He says himself: "I am not folk-song mad, for other music I like just as well, but folk-song music is an unconscious art and dies away, and it is wise to record it while we may." When he came to America the negro melodies had a strong fascination for him. The

composer, Grieg, said of Grainger, "He plays my Norwegian peasant dances as none of my own countrymen can play them. He has the true folk-song poetry in him, and yet it is quite a way from Norway to Australia."

He is a lover of and believer in popular music from everywhere and so when he went into the American Army he found army music was folk-song music to him. He has always loved unusual combinations of instruments. "Sounding brass and tinkling cymbal are not empty, futile things to him." One of the first things he wrote had mandolins and guitars in it, and he delights in the introduction of bells and gongs into his compositions. He frankly confesses that he has an unquenchable hunger for every sort of sound, large and small. So he uses xylophones, saxophones, oboes, the glockenspiel, the marimba, and other queerly-named instruments.

"In a Nutshell" is one of the unusual sort of compositions produced by Percy Grainger. One critic describes it as "alertly cheerful; it has a vigor and freshness amid its cacophonous clatterings." "A man who can play a long minor concerto so that one is genuinely sorry when it stops, and can write music that will stimulate a symphony audience into demonstrative good humor, is a great man." The same critic says; "A Grieg minor concerto revealed Mr. Grainger as a pianist

PERCY ALDRIDGE GRAINGER

of genius—a phrase that can fairly be used of very few living pious virtuosos."

Another writer speaks of him as a creative musician and executive artist of rare accomplishment and describes him as in the first rank of the world's militant musicians. That word militant suggests a peculiar characteristic of his which has been accounted for by his athletic inclinations and his dislike of the artistic, and that is his use of odd words and phrases that border on the slang order. His directions for playing his compositions are thus expressed; "bumpingly"; "louden lots"; "hold till blown," which are strikingly singular. He is certainly unique in himself and in what he does. The writer who particularly comments upon Grainger's tendency to be vulgar, nevertheless has this to say: " 'His Warriors' is incomparably far and away ahead of any modern music with possibly one exception. As a blender of tones he is unequalled. As a pianist he is extraordinary."

It is very interesting to hear from himself why he gave up for a time concerts that brought him $1,000 each, for the thirty dollars a month he received as a member of the United States Army. He says: "I am very happy here. I have very much wanted to give any musical gift which I have, to this country; to serve this country in a musical way. Also I wanted to enlist under

Resta who is bandmaster here; he is a particularly brilliant musician. I enlisted because I love America, its generous humanitarianism, its wondrous kindliness, and broad tolerance. I took out my first papers soon after I arrived, and wish to make America my home. It is only natural that in times of trial like these, the musician should long to pass on to others in as broad, as public, as democratic a manner as possible, that message of calm comfort, optimism and courage that is the very soul of music, whether it be of Bach, or Wagner or Chopin, or of a military band playing 'Somewhere on Broadway' or 'Over There.' My life in the army here is deeply happy and I should be content to remain here always."

After the war, he returned to the concert stage with technique unimpaired, and has since toured the world with his piano. But the major part of his time he spends in America, which he now calls "home."

A PLANT EXPLORER

NIELS EBBESEN HANSEN

TENS of thousands of miles of travel through foreign lands, a night spent out on the steppes of Siberia in a piercing wind cold enough to freeze the mercury in the thermometer, and often in danger of losing his life from pneumonia, cholera and bandits—such were the experiences of a young Dane in the endeavor to find an alfalfa that would stand the extreme cold of our great Northwest and the extreme dryness of the American desert.

Why did he do it and what was the use?

He is a man who when he sees a need starts to fill it if there is any possibility of doing so, and there was a great need of supplying the farmers of the West with some means of making a success of their farms. In 1898-9 they had lost millions of dollars because they had not the right kind of grain to stand the below-zero cold that exists for so long a time in that region. The kind of alfalfa known to them would not grow in such weather, but if the right kind could be found, it could be made to yield one hundred dollars per acre.

This was the belief of Niels Ebbesen Hansen who was born near Ribe, Denmark, January 4, 1866. His father brought his family to the United States in 1873, and in 1877 settled in Des Moines, Iowa. At seventeen years of age Niels entered the Iowa agricultural college at Ames, graduating in 1887. He spent four years in large commercial nurseries where he gained much experience in the hybridizing and crossing of our native fruits. Then he was appointed assistant professor at Ames. In 1894 he was sent by Professor Budd, the head of the department, on a four months' trip to eight European countries for plant exploration and study.

In 1895, he was called to Brookings, South Dakota, to be head of the department of horticulture in the Agricultural College and State Experiment Station. There a plant-breeding greenhouse, the first of its kind in the world, was established. In it Hansen accomplished much toward improving the fruits of the Northwest. Few of them could be cultivated in the extreme weather conditions of that territory. It is fascinating to hear how he has patiently and persistently experimented in hybridizing and crossing of the usual varieties with more hardy kinds that would stand the below-zero cold and the long drouth of the desert. By hand he has carried the delicate dust of the pollen from one

blossom to another and inserted it with knife point or camel's hair just where it would most surely fructify. Out of 8,000 blossoms hybridized, only 225 were considered worthy of further propagation, and even this number were finally much reduced, so much effort and patience does this work demand.

The professor has succeeded in producing a luscious strawberry by crossing the wild plant with the ordinary commercial varieties; a raspberry of North Dakota with the Shaffer berry of New York; and the native Indian plum with the California plum, with the Chinese apricot or the Japanese plum. All of these new fruits will stand a temperature of forty degrees below zero without any covering whatever. Through Hansen's efforts the Experiment Station at Brookings has become second in the country to that of Luther Burbank.

But it is in relation to his discoveries of a new alfalfa that he has most largely benefited the farmers of the Northwest.

Alfalfa is a forage plant of unusual nourishing qualities; it gathers nitrogen from the air abundantly and so restores and renovates the soil. It is long-lived and is extremely palatable food for cattle. Long before the Christian era it was the chief crop for subsistence in the region between India and the Mediterranean. In the fifth cen-

tury B. C. it was carried into Persia and from there into Greece, Italy and Spain. Centuries later it was taken into South America and from there found its way into California. But when finally it reached the Northwest this kind of alfalfa did not flourish there. In many districts the financial results were uncertain and often caused failure to farmers in consequence of the alfalfa being killed by extreme frost or by lack of sufficient moisture in summer.

Professor Hansen was convinced that a hardier variety could be found in the countries where alfalfa originated. He is a quiet man who has imagination but is logical in his conclusions, and once he has decided on a certain course, he pursues it without faltering until he has attained his aim. In 1897 James Wilson, U. S. Secretary of Agriculture, asked Hansen to go to Asia as the nation's first plant explorer, the object being to secure drouth and cold-resistant seeds and plants of commercial value.

The journey was full of adventure. He first went to Russia to secure information; then crossed the Caspian Sea and reached Turkestan. He traveled hundreds of miles along the Tian-Shan mountains and then went into China where he found the object of his search—the hardy alfalfa—the blue-flowered variety, at Kuldja, in the province of Ili. But this did not satisfy

Hansen; he wanted to find the hardiest of all alfalfas. He was told it was to be found at Kopal, in Turkestan. He hurried northward across deserts and wild mountain ranges, tracing it by caravan for 1,300 miles, to latitude 45 degrees north by 75 degrees east longitude. Here he and his company gathered the seed out on the steppes, but winter suddenly interfered in the form of a violent blizzard. At the risk of his life he pushed on to Omsk, on the Trans-Siberian Railroad, a 700-mile trip. His Tartar drivers lost their way and he had to spend the night out-of-doors in a piercing wind cold enough to freeze the mercury in the thermometer. All that saved him from death which overtook two men in another caravan was his reindeer suit which covered him from the top of his head to his knees whence fur boots reached to the end of his toes.

In the morning they found shelter and warmth in the posthouse at Sergiopol, but pneumonia had taken hold of Hansen and compelled him to stay at the military hospital there. At the end of a week he pushed on but was again obliged to stop for drastic treatment at Semipalatinsk. After a terrible drive for three days and nights, he reached Omsk, whence he hastened by train to Bremen, from which he sailed for home.

In 1906 he made a second trip for the U. S. Department of Agriculture to Siberia where he

discovered the hardiest alfalfa—the yellow-flowered species. These were good forage plants, one variety growing on the steppes between the Irkutsk and Obi rivers in central Siberia, the other 1800 miles farther east in Mongolian Manchura. On this trip he also visited Lapland, Russia and Japan.

On some of his journeys he had to travel in a tarantass—a four wheeler without springs, the bed being swung on long wooden poles, a most uncomfortable conveyance. In his search for information he was much handicapped by having to use three interpreters; one to translate Chinese into Tartar, another to turn Tartar into Russian, and a third to change Russian into German, which he could himself speak and understand.

The United States Department of Agriculture evidently considered the results of Professor Hansen's explorations very much worth while, for in 1908-9 he was asked to make a third trip, this time including Mongolia and North Africa. On this occasion he found that the northeastern limit for the yellow-flowered variety of alfalfa was in the vicinity of Verkhoyansk, 68 degrees north—said to be the coldest spot on earth. The seed he brought home came however from latitude 50-55 degrees. During this journey Hansen was in constant danger from bandits and he also came in close contact with an epidemic of Asiatic

cholera, but fortunately reached home safely.

Now came the task of developing the valuable seeds he had obtained into a sufficient supply for the use of the farmers of the United States. Here again is a wonderful story of results. From one spoonful of seed secured in 1906 in Turkestan, no less than 1000 bushels of seeds have been produced. One plant of Cossack alfalfa in 1911 yielded 41,430 seeds, and 500 stems to one plant have not been uncommon. The sturdy growth of the new kinds of alfalfa has been proved repeatedly in all sorts of conditions. Good crops are produced under adverse experiences of drouth and extreme cold; it grows up again freely after being cut off by hail, eaten by rabbits and trampled down by horses. The South Dakota Legislature appropriated $1,000 a year for two years to aid the farmers in making tests of the new alfalfa. Their reports were very satisfactory. In consequence the demand for seeds was large and Dr. Hansen foresaw it would increase rather than diminish. He therefore set himself to find a way by which the demand could be met most quickly, and here the genius of the man was called once more into play.

Having proved that sowing seed broadcast was wasteful, he decided that by transplanting he could make one pound of seed go as far as

840 pounds under the broadcast method. Then he introduced transplanting by horse-power machinery. An adapted tobacco planter was used by him for the purpose, with which plants can be set at the rate of 6000 per hour. In 1913 the Legislature appropriated $14,000 to push the production of alfalfa seed, and $10,000 to send Hansen to Russia and Siberia to procure more seed. Before starting he pushed the work of transplanting, having more than 500,000 plants set out.

Professor Hansen did not confine his search in foreign countries to alfalfa alone. Specially he sought for more hardy fruits with which to improve the native supply of the United States. On the borders of Persia he found a large and delicious grape of which he obtained 500 vines. In the Altai mountains he discovered seeds and plants of a wild currant larger than the cherry currant known to us; also he found a wild hardy blackberry and a Persian clover, one of the finest of plants for forage, which perpetuates itself for five or seven years.

In 1917 the Massachusetts Horticultural Society gave Hansen the George Robert White gold medal in recognition of the benefits he had brought to the United States and in the same year the University of South Dakota conferred on him the degree of Doctor of Science. He

might have won a fortune for himself with his discoveries, but he has not chosen to do so, preferring to benefit his fellow citizens. He has proved himself loyal and devoted to the interests of this country which is not his native land, but for which he has sacrificed and endured. The secret of his success lies undoubtedly in his reverent, philanthropic spirit and his modestly declared belief that he is doing the Lord's work, helping to make life easier for hundreds of men.

A GREAT LINGUIST AND SCHOLAR

MICHAEL HEILPRIN

THE first twenty years of Michael Heilprin's life were spent in Russian Poland, where he was born at Piotrkow in 1823. His father was a merchant and also a Hebrew scholar of high rank, who did business in Tomaszow, where Michael spent his youth. The boy began the study of Hebrew as was customary among the Polish Jews, at the age of four or five years. He never attended any school, his father being his only teacher. German was his mother tongue but he had a thorough knowledge of Polish also. He studied Latin, Greek and French simultaneously, rising every morning at two o'clock and beginning at once with his books.

The oppression of the Russians grew to be so burdensome that in 1842 he and his young wife went with his parents to Hungary. This was the country of his devoted service and love. He established a bookstore in Miskolcz, and he was included in the local club of nobles. His sympathies were with the national liberal movement.

In 1848 when the revolution broke out, his revolutionary poems were popular. He accepted the secretaryship of the literary bureau of the department of the interior, but the revolution collapsing, Mr. Heilprin barely escaped capture by the Austrians. Finally he succeeded in making his way to Paris, later returning to Hungary. While teaching a school there he made a special study of the English language with the thought of going to America. He came to this country in 1856.

At first he found some difficulty in getting employment but in 1858 he was given the task of revision of all the geographical, historical and biographical articles in "Appleton's New American Encyclopedia," for its editors were greatly impressed with the extent and accuracy of his scholarship. His great service to the publication was in the line of verification and unification. In 1861 Mr. Heilprin began writing for the weekly paper, *The Nation,* of New York City, also for the *New York Tribune,* principally upon European politics and literature. From 1863 to 1865 he lived in Washington, where he kept a bookshop and came in contact with many noted men. He was deeply interested in the Civil War, being an ardent anti-slavery man.

The restoration of political liberty to Hungary was a great joy to him, and had he desired to

return to that land he doubtless would have held a prominent place in the Hungarian parliament, but he was so happy in America, his adopted country, that he did not entertain the idea. While a resident in Washington he began to produce much anonymous critical work. The only exception to these anonymous productions was his Historical Poetry of the Ancient Hebrews, which he considered to be a standard work on the subject. His critical work for *The Nation* continued for more than twenty years. No man was ever more careful to be accurate in his statements as he was in his criticism.

In 1872 the editors of "Appleton's Encyclopedia" desiring to revise it, sought his services again. Their estimate of his powers was thus expressed "A man of boundless erudition; master of all languages, eastern and western." He was entrusted with the final revision of the encyclopedia, after the proof sheets had been examined by every one else. He had authority to make any corrections he saw fit, and to reject or rewrite the whole or parts of any articles. Because of his failing sight his daughters and sons were his faithful assistants. His knowledge was nothing short of marvelous. He would look over a dictionary of dates and make half a dozen or a dozen corrections upon every page. He could name the time and place of each of the six hun-

dred battles and engagements of the Civil War in the United States. He had a reading knowledge of eighteen different languages and acquired Roumanian in the last weeks of his life. He could speak eight, it is said, and he was accustomed to say that he could think with equal ease in several different languages. His conversation was very unusual, for his enthusiasm was so intense that he swept his hearers along with him. Yet he was so modest a man that he never appeared conscious of his vast knowledge and he always made it easy for those who knew less to talk with him.

In 1881 Mr. Heilprin's soul was greatly stirred by the persecutions of the Jews in Russia. They began to flock to America. He was not himself a Jew by profession and he had not observed in his own home any of the ceremonies of Jewish faith, but he deeply sympathized with them. He devoted himself to planning for their succor and aided in planting agricultural colonies for them. He collected funds to help those in want. He spent many hours of each day in a dark basement office working in their behalf, making efforts to house them, giving relief to those needing it and arranging for transportation for those willing and able to leave the city. As a result of these heavy labors Mr. Heilprin's health was much impaired. In January, 1888,

four months before his death, he wrote a letter to Mr. Oscar S. Straus, stating the conditions and needs of the Jewish fugitives. This statement was the direct cause of the establishment of the Baron de Hirsch fund, with an endowment, later increased to four millions. It was a great agency for aiding the Russian Jews. Throughout the country thousands of Jewish farmers have given convincing evidence that Mr. Heilprin's belief in their ability to become successful agriculturalists was not ill-founded.

He was a most lovable man, of quiet nature and scholarly attainments. "The pure patriot of two countries, with a heart for the humblest fellow man whatever his race or faith."

His son Angelo who came to the United States when only three years old, was distinguished for his scientific knowledge which won for him the Forbes Medal for proficiency in biology and paleontology. He was appointed professor of invertebrate paleontology in the Academy of Natural Science in Philadephia, and later, to the chair of geology. In 1883 he was made curator in charge, serving until 1893. His services were very valuable to the Academy, and he secured from the Legislature appropriations for its needs. He was an intrepid explorer and became world famous for his daring ascent of Mont Pelee on June the first after the eruption of

May 8th, 1902. He was the author of several scientific books and was a prodigious worker with a wonderful memory and an extraordinary accuracy on details. All his life he gave freely of his time and advice and was always ready to do a service for a fellow man.

Louis, the other son, had, like his father, a marvelous memory, probably strengthened by the fact that owing to weakness of eyesight, he was unable to read for more than a few minutes at a time, and was dependent upon his sisters for his reading. Nevertheless he was a fine scholar in history and geography and an cyclopedic expert of whom it is said there was no man equal to him in that capacity. His "Historical Reference Book" has become a standard manual of unrivaled accuracy although all the consulting of authorities had to be done by others under his minute direction. He contributed frequently to the newspapers. He devoted much time and thought to civic affairs and the vote was to him a sacred performance. He always responded to the call of those in trouble and had no thought of himself in anything he did. Both sons were worthy successors of their father.

AN EMPIRE BUILDER

JAMES JEROME HILL

OUT from the edge of the Canadian wilderness in 1856 traveled a boy of eighteen, with little money, but with great dreams of what he would do in the future. The glamor of the Orient attracted him and he started to go to the Atlantic coast of the United States and enlist as a sailor, but finding no opportunity to carry out his plans, he changed them and went westward across the prairies, intending to go to the Pacific Ocean. Arriving at St. Paul, at that time only a little trading settlement which lately had dropped its first name of "Pig's Eye," he found he was too late to join the band of troopers and traders who had already started for the West. So he decided to remain there for the winter and began work on the Mississippi levee as clerk for J. W. Bass and Company, agents for the Dubuque and St. Paul Packet Company of Mississippi River steamboats.

After a year's experience his viewpoint changed. All the life of the community centered round the levee. To such an eager mind as his everything about him challenged investigation.

He gave up his idea of going to the Pacific coast. He still had his visions of a big future and as in his Canadian home he had seen the wilderness gradually yielding to man's control, so he began to dream of what might be accomplished with the vast territory around him if transportation were developed.

This young man, James Jerome Hill, was of Irish and Scotch descent. His grandfather was a man of great force of character, with a powerful will and a hatred of any form of injustice. These qualities were particularly noticeable in his grandson. The mother of James, a Dunbar by birth, was a woman of intense temperament; from her, her son derived many of his leading characteristics. He was born in 1838 on a farm, in a little log house, near Rockwood, forty miles from Toronto. His father desired for his boy the best education available, so after attending district school until he was eleven he was sent to a private school, Rockwood Academy, kept by William Wetherald, a Quaker and an Englishman of college education who believed in the best things of life and in mental discipline as a means of fitting the mind for all that might come before it. Under such a man James spent four happy years studying in addition to the elementary subjects, Latin, a little Greek, algebra and geometry.

While working as a clerk on the Mississippi levee James J. Hill studied everything he could, specially transportation, engineering, history and science. For recreation he took up work in water colors. What he read, he made his own most thoroughly.

An incident will show his characteristic way of doing things. The business house for whom he was working was asked to take the agency for a threshing and reaping machine. At that time such machines were not known to many people. Hill was asked if he could set up the machine. He thought he could if he should see one at work. He went to a farm where a threshing machine was in use. After looking it over, he said, "I felt quite competent to set one up in running order, and within a few days, a customer came along and I sold him a machine. I felt a good deal of confidence in my ability to run a threshing machine. There is a good deal in having nerve." And so it proved, for the machine worked satisfactorily.

The outbreak of the civil war made Hill eager to enlist but he was much disappointed when he found that the loss of one eye through an accident in childhood, disbarred him from entry to the ranks of the First Minnesota Regiment.

In 1865 James Hill went into business on his own account, in forwarding and transportation.

Extracts from daily newspapers of those years show how well he succeeded. "J. J. Hill beats all his competitors when it comes to making the very lowest rates on freight shipments to all points east and south. He also guarantees that all freight consigned to him will be transferred at the levee free of charge. This saves the shippers five cents per hundred pounds and in return Mr. Hill gets the bulk of the transportation business for the various lines he represents." Upon the closing of navigation Hill converted his immense warehouse into a haypressing establishment, whereupon a newspaper comments: "It is a noticeable fact that when Mr. Hill starts to accomplish a thing, he does it complete and single-handed, asking no aid from any one. He says that all hay offered will be taken and if his present warehouse is not large enough, there is plenty of lumber to build others, and plenty of vacant land to erect them upon. This remarkable young man evidently means to keep abreast of the times."

Meanwhile J. J. Hill was letting no opportunity escape him of studying the development of that wide territory by railroad systems and laying plans for them. In 1862 ten miles of track was the extent of the railroad in the whole state of Minnesota, and he endeavored to open the eyes of the people to the big results of an increase

of railroad facilities in lessening freight rates. He made a special study of fuel provision for he was convinced that coal would take the place of wood as a motive power. He became an expert as to the quality and quantity of coal to be found in the Northwest. He laid his plans for control of coal mines so that thirty years later the northern transcontinental railroad found its fuel requirements provided. This was one beginning of his empire building and another was the establishment of a regular line of boats, carts and steamers operating between St. Paul and Winnipeg. He familiarized himself so thoroughly with local conditions that he was able to forecast and provide at the right time the particular arrangements needed to improve trade and enlarge its extent. One great secret of this man's success was the thoroughness with which he did everything.

In 1869 he was unanimously chosen president of the Democratic county convention and in 1871 he was nominated for the office of alderman. This led him to take out his naturalization papers, a matter he had long purposed as he had often proved his interest in and loyalty to this land.

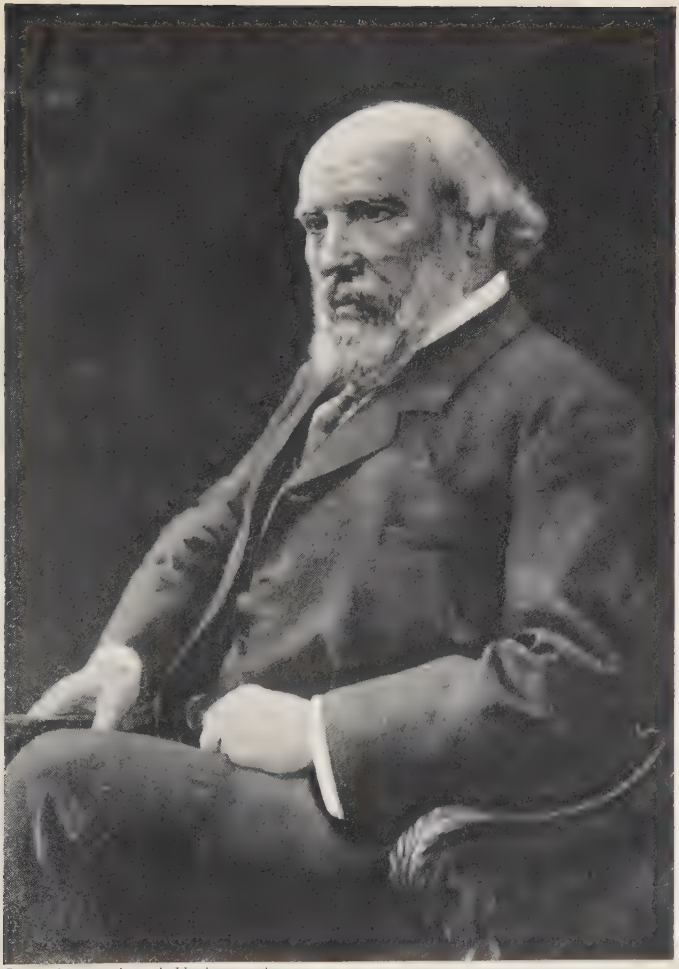
During the next few years he made several trips through the Northwest that he might know better the exact conditions of that part of the

country. Various were his experiences in these journeys, by boat, or on foot with snow shoes, or sometimes by sleigh or railroad train. On one occasion Mr. Hill was obliged to perform a surgical operation in setting a dislocated arm of his half-breed guide. His description of this proceeding indicates his own ingenuity and foresight. He says: "I cut a box elder stick with a crotch or fork at one end. I took my underclothes and bound them in a roll and put it under the man's arm and got him under the cart with a stick between his legs. I put the fork against this, cut a notch in the end and let the rope twist in through the notch and back to the wheel. Then I got a stick and took a twist on the rope so that the same power that hauled his arm ahead pressed through the fork on the notches and pushed the end of the stick down tight. I took care to sit across him. I had his head under the cart. I felt reasonably sure that there would come a time when it would become necessary for me to keep him in that position. I gave him a stick to hold and he thought that possibly if he let go of the stick he would be able to let go of the rope, but I had several turns of it around his wrist. When I got a good strain on him, he began to yell, but I kept going until I felt that the bone pressed into its place. I got him out from under. He found the joint was back. Then the poor fellow

wanted to say his prayers and Mr. Hill says, "and I wanted to give him an opportunity, but I was ready to go on, and suggested that if he would repeat after me I could do it more quickly." So Mr. Hill took the man's little French prayer book and read the prayers for him.

In 1873 he obtained the opening for which he had been looking, by the bankruptcy of the St. Paul and Pacific Railroad Company. It was in an unfinished condition. Only two lines were really completed, that from St. Paul to Sauk Rapids and to Breckinridge. Of other lines fragmentary portions only were graded or laid. There was but little of value but the land grant and the right of way. But to Mr. Hill with his intimate knowledge of everything involved in the venture, there were great possibilities. So with four other men he purchased the bankrupt railroad, putting his entire fortune into it. He took over its immense debt of thirty-three million dollars. Within six years he had extended the road to the Red River, and connected it with the government line to Winnipeg.

In his purchase of this railroad may be found the beginning of his Great Northern railroad system which made him known all over the world. By this extension of his road he opened up the rich land opportunities of Minnesota and Dakota



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JAMES JEROME HILL

which had long been waiting for immigrants. Trade was developed, connecting the wheat production of these lands with the markets where it must find purchasers. In 1883 Mr. Hill extended his railroad to Helena, Montana, and ten years later he began to carry out his long-time dream of a railroad stretching clear to the Pacific coast. Almost insurmountable obstacles had to be overcome, but J. J. Hill was a man who knew not the impossible, and he succeeded.

Here is the statement made by an authority on railroad building, A. B. Stickney; "That Mr. Hill had the genius to build a line across the unsettled plains and the mountains to the Pacific in 1890-93, without a land grant or other government aid—a feat never before accomplished—and to build in sixteen years over three thousand miles, and make the improvements specified by only doubling the capitalization, seems to the people of the West a wonderful exhibition of economic achievement."

J. J. Hill was a master of efficiency in everything he undertook simply because he made it a rule to understand fully all about each thing he had to do with. Here is the reason why he was so successful as a railroader. "Every day observation," he wrote in a letter, "convinces me that in a new country a railroad is successful in the proportion that its affairs are vigilantly

looked after," and if ever a man were vigilant, he was that man. In some diaries of his we find mentioned certain things he desired to remember: location of gravel pits; side tracks, water tanks, lay of the country with reference to the line, condition of crops, rough places in the track; condition of track joints, where cars were standing unloaded and idle; wasted effort by hauling in gravel when the same material might have been obtained from the side of the track, etc.

A note in another diary says that "everything lying around but not needed for operation must be picked up and put away; platform east end of depot wants one 18-foot plank for repairs; flat 1269 has two broken truss rods and should be repaired."

Few men show ability to put through such immense tasks as Mr. Hill successfully carried to completion, and at the same time have "such infinite capacity for taking pains."

His vision of developing the Northwest included making the settlers prosperous; he saw that few farmers understood how to save themselves from ruin in a bad wheat year. So he bought fine cattle and bred them on his farm, giving away more than eight thousand head to farmers to encourage the raising of livestock and promote the dairying industry. He gave these cattle to responsible farmers who were to allow

other farmers to use them for breeding purposes without charge. For years he employed Thomas Shaw, an expert in animal husbandry, to instruct the farmers.

Hill dreamed when a boy of going to the Orient; now his ships were to go instead. He sent men to China to study the needs of that country and they reported a demand for flour and steel. Then he organized the Great Northern Steamship Company and built two huge ships, the Minnesota and the Dakota and sent them to Yokohama and Hongkong, to take to those ports the goods brought from the East in the trains that had been returning empty after taking lumber from Oregon and Washington. Unfortunately he was forced to withdraw them from overseas trips on account of the unfavorable rates and regulations required by the United States government which made the cost too excessive.

Mr. Hill became greatly in demand as a public speaker, and he always attracted a large audience. He knew how to express himself with lucidity and to the point. His book, "Highways of Progress," has an economic value that makes it authoritative. Many honors came to him in his later years, among them was the degree of Doctor of Laws, conferred by Yale University, in 1910. In anouncing it, Professor Perrin said: "Mr. Hill is the last of the generations of wilder-

ness conquerors, men . . . who blazed all the great trails which determined the nation's future. . . . Every item of his colossal success rests upon series of facts ascertained by him before they had been noted by others, and upon the future relations which he saw in those facts to human needs and national growth. . . . The greatest things in all his greatness are his belief in the spiritual significance of man and his longing for the perpetuation of American institutions at their highest and best."

In his address Mr. Hill said these memorable words; "I have never found where a lie would take the place of truth. In nearly fifty years of rather active business I have never found a transaction that was worth following when it led under the shadows of a deception of any kind."

Certain it is that this empire builder was an unselfish citizen of the United States who made thousands of men and women happier because of his clear vision and his faith in the future of the great Northwest. These have been a legacy of immense benefit.

THE INVENTOR OF THE SUBMARINE

JOHN PHILIP HOLLAND

IF EVER a man persevered in spite of repeated discouragements it surely was John Philip Holland, but he won out at last when his model of a submarine was accepted as the standard of the United States Navy. It was another instance of this country being indebted to a foreign-born citizen for something of real value.

John Philip Holland was born at Liscannor, County Clare, Ireland. He received his education in the Christian Brothers' Schools in Ennistymon and Limerick. His father's death obliged his going to work and he did so in a tobacco shop. In 1858 he aspired to something higher and became an instructor in the school in which he was educated, but his health failing, he was transferred to a school in Waterford in hope that he would be benefited. Then still not in good health, he went to Cork. Soon after, the Civil War started in the United States and the naval battle between the *Monitor* and the *Merrimac* turned his thoughts to some way of

combatting such ships. His father having been a coastguard naturally gave his son a love for the sea and all connected with it. So he studied and thought of the possible means of overcoming an ironclad ship, and the idea of a submarine first came to him. He did not give it up but commenced a systematic study of the subject. In 1863–4 he drew his first plan of an under water boat.

But his ideas were too novel for him to be able to secure the necessary financial backing for the carrying out of his plan. He therefore abandoned further effort for awhile, although he continued to study the matter and continued his teaching.

In 1873 he came to the United States, settling at first in Boston where an accident by falling on the ice confined him for some time to the hospital. This gave him a chance to devote his mind again to the subject of the submarine. He was accustomed to say that this accident was the luckiest thing that ever happened to him, for it gave him opportunity to discover and remove some defects in his original plans for a submarine and aided greatly the ultimate success of his device.

Holland was an ardent Irish patriot and his submarine plans were made largely with the purpose of reducing England's sea power. His

first attempt to build the boat he planned was made at Patterson, N. J., where he went to teach in St. John's Parochial School. Old residents of the city long remembered the curious sight that passed along the streets. On a truck was a cigar-shaped boat drawn by sixteen Rogers' locomotive horses to the Passaic River. It certainly was not a success, for it stuck in the mud when it was launched; it leaked constantly; and the petroleum engine broke down frequently. It was generally regarded as a joke. Finally Holland himself towed it out and sunk it in four feet of mud off Lister's boathouse.

It was a discouraging result, but nothing daunted, Holland set to work at once on plans for a second boat, endeavoring to profit from the defects of the first one. The Fenian Skirmishing Fund was raised by Irish patriots in America for the purpose of aiding their native land, and sympathizing with Holland's idea of combatting England, they furnished him with the financial backing he needed, although he was not himself a Fenian. This boat was an advance over his first one, because it was built on correct principles; it sailed more easily; it stayed under water in the desired position; the operator had no difficulty in breathing, and the compressed air chambers worked exactly as wanted. But it was not a perfect boat as the machinery was badly placed.

A newspaper reporter named it the *Fenian Ram* and the name pleasing Holland, he adopted it.

Financial troubles now annoyed him, nevertheless he built a third submarine at Fort Hamilton, but unfortunately it was wrecked in launching by a collapse of the ways. This hindered his doing anything further for awhile, but he continued to endeavor to interest the United States government in his submarine plans. Then the Navy Department began to investigate the subject and in 1888 asked for designs. The Holland Company, which had been formed, submitted those of Mr. Holland, but neither his nor those of any other competitor were accepted at this time, although Holland's were unanimously declared to be the best. In 1893 the Navy again asked for designs, and in competition with nine others, those of John Philip Holland were accepted and a contract was given him. To comply with this order he started to build the *Plunger* but it was never completed as improvements were contemplated.

Another was built at the company's own expense and named the *Holland;* it was fitted with gas engines instead of those run by steam, and it proved to be the first really successful submarine. It was accepted by the United United States Navy as its standard in 1900. It

was only fifty feet long and carried only one torpedo tube. It came to the surface quickly to take observations and took only five seconds to disappear, dropping below the waves before an enemy could fire a shot. Mr. Holland is said to have taken the porpoise as his diving model. In the manœuvres off Newport when it was tested, everything worked most satisfactorily. The warships knew this new strange vessel was after them and they had their searchlights out, but they failed to discover her, yet she sailed up to the *New York* and fired an imaginary torpedo at her, and she did likewise with the *Kearsage.*

Admiral Dewey said, on witnessing the performance, "If they had had that sort of thing at Manila, I never could have held it with the squadron I had. The moral effect is immense. It is wholly superior to mines or torpedoes."

The government ordered more submarines at once. After all his disappointments, Holland had at last won, and proved his faith by his works. Others had preceded him in attempts to make a submarine, notably David Bushnell and Robert Fulton, but Holland was the first to make the idea really work. Arrangements were made by England to purchase the rights to all his patents, and since then, the English submarines have

been developed from Holland's designs. Austria also built many for other countries under a license from him.

Holland benefited this land by giving it the means to protect her coasts against all attacks of her enemies. A fleet of submarines on each coast would effectually keep this country from bombardment by foreign ships of war.

THE INVENTOR OF THE FICTION SYNDICATE

SAMUEL SIDNEY McCLURE

"EARLY every night the pail of water in my room used to freeze solid and swell up in the center. I had a fur cap by this time and I always ate my meals walking up and down the room, with my cap and woolen mittens on. I seldom had anything to eat but bread, and it froze so hard it was full of ice and hard to chew. I cannot remember anything more dismal than those meals in that terribly cold room. Going to bed, however, was the greatest hardship. The sheets were so cold, and had been for so long, that getting into bed was like plunging naked into a snow drift."

What young man nowadays would care enough about going through college to be willing to go through such experiences as these told by S. S. McClure in his autobiography? He had many hardships for long years, but he bore them all with a remarkably cheerful spirit, without any idea of giving up the particular thing he was aiming to do; be it a college education or getting

started his invention of the newspaper syndicate.

Samuel McClure was born in Antrim, County Tyrone, Province of Ulster, in Ireland. His ancestors on his father's side were Scotch, and on his mother's, French Hugenot. His home consisted of only two rooms in a stone cottage, with an earth floor and a thatch roof, but it was warm and comfortable, and he seems to have been very happy there, especially when he began going to school at four years old; he says himself that he cannot remember a day when he did not want to go to school. He found it very hard to get enough books as he could not enjoy reading a book twice, with the exception of "Pilgrim's Progress," which he read two or three times with delight. After his father died when he was eight years old, hard times began, and his mother decided to take her four boys and go to America, where her brother and sisters were settled. During the next four or five years he did chores and helped on the farm. At fourteen his mother told him he must go away and try and get an education. So he started for Valparaiso, Ind., where he entered the High School, being boarded in return for helping in the house.

An odd occurrence led to his adoption of a new name. The Professor asked each new scholar to give his name and Samuel noticed that each of them had a middle name. He did not want

to be conspicuous by having less than the other fellows, so as he greatly admired General Sherman, of whom he had read in a history of the Civil War, he gave his name as Samuel Sherman McClure, but later changed the middle name to Sidney.

Various and many hard experiences followed. Then he decided to enter Knox College in Galesburg, Ill., reaching there with only fifteen cents in his pocket, and the one suit of clothes which his mother had made for him. He was then seventeen and as he had to enter the third preparatory year, he had a seven years' job before him. It was hard work for him for he had to do chores every day and be a farm hand in vacations.

When he had finished his second preparatory year his mother having sold the farm, decided to revisit Ireland and took Samuel with her. He enjoyed seeing relatives and friends again. For some reason his mother did not think it best to take him back to America, but he had made up his mind that he wished to continue his college course at Galesburg. Moreover a certain young lady was there with whom he was very much in love. Samuel had no money, but as he went to wish his relatives good-by one and another gave him money, so that finally he had thirty dollars. He was determined to return on the *Illinois*, the

same boat by which he had come from Philadelphia. He was also determined to return without paying his fare. He expected to get off as a stowaway but he was ordered off the vessel by one of the officers. So he went on shore quite dejected. Feeling that he "simply *had* to cross on that boat," he bought some writing paper and wrote to the first officer, telling him that he had to get back to America to finish his college education. Then he sat on the dock overcome by despondency. He had written the letter, he says, to relieve his feelings, but with no expectation that it would influence the officer. However, it did, and the result was that he was made mess boy and had to work for his passage. Stormy weather caused sea sickness but he had nevertheless to scrub the corridors, serve meals for the officers and wash all the dishes. Moreover he had to make fifty pies every day which, he states, he soon learned to do very well. His only time off duty was one hour in the afternoon. His berth was next the smoke stack and was too hot to sleep in and the mattress was covered with cockroaches alive and dead; so he took his blanket and laid down in the hall, getting such sleep as he could between midnight and morning. It was no wonder he "thought that the ten days of that crossing very long."

From Philadelphia he had to pay his fare,

getting off the train in Galesburg with exactly one dollar in his pocket. Finding the students were excited over a gymnasium building going up on the campus, he at once gave his dollar to the fund for it, for he thought he "might as well start even." Then he went to call on Harriet Hurd, the professor's daughter, and asked her if she would marry him in seven years if he turned out to be a good man. She said Yes. The audacity and simple faith of the youth make one smile and admire simultaneously, for the young lady was a senior at Knox while he was only in his last preparatory year. Naturally as she was a student of unusual promise her parents and friends did not favor the arrangement.

The winter went badly with him for although he could have done work for his living, doing chores had become hateful to him, having been at that job since he was eleven years old. He became absorbed in his college work and was fascinated with Virgil's "Æneid." He also read Richter's "Titan" and Goethe's "Wilhelm Meister." Carlyle and Emerson he discovered for the first time. And yet he had no money and rather than earn it he suffered the experiences described at the opening of our story. The next summer he had to part from his young lady friend as her father was sending her east to school and she had promised not to see or

write to McClure. For four years he did not see her again.

Samuel graduated from Knox College in 1882, having dropped out one year to teach school at Valparaiso. He spent the summers peddling, which he enjoyed as it gave him the opportunity to be in the open country. He got acquainted with the people of the small towns and comunities so that in later years when he was editor of a magazine, he felt that he knew what they liked to read. He got his initiative in magazine writing by editing the *Knox Student,* the college paper. His senior year was distinguished by a renewal of his friendship for Miss Hurd who informed him that things had never changed between them. He went east to visit her in June, 1882, but she had changed her attitude and refused to see him, therefore he did not care where he went, so took the first train from Utica which chanced to be going to Boston.

Here he got employment with the Pope Manufacturing Company, teaching beginners how to ride a bicycle. He had never been on one in his life nor even close to one, but he was in the predicament of the dog who had to climb a tree. So in a couple of hours he had learned to ride a Columbia wheel—the high old fashioned kind—and was teaching other people. At the end of a week Colonel Pope engaged him to take charge

of the rink over the office of the company. Not long after Colonel Pope asked McClure if he could edit a magazine. "Why yes, Sir," was the quick response, for the youth was afraid that his questioner might change his mind. Then he added, "I could edit a monthly; I hardly think I could manage a weekly." The result was that McClure was made editor of the *Wheelman,* published in the interest of the Pope concern, within two months after he had left college.

In 1883, at the end of seven years lacking three days there came to McClure the thing he had longed for, marriage to Miss Hurd. She had waited a reasonable time hoping to have her father's consent, but she at last felt that if he did not give it, it was right for her to marry the man who had waited for her so long. They settled in Cambridge, Massachusetts. He was then making fifteen dollars a week and the rent of the house took half of it, and they lived on the other half. A combination of the magazine *Outing* with the *Wheelman* under the joint control of McClure and V. B. Howland, made the former look for other employment, for he felt he could not work well under such an arrangement. He secured a place with the De-Vinne Press at twenty-five dollars a week, and his wife had work on the Century Dictionary at fifteen dollars weekly. But he did not like

his work there and changed to the Century Company; unfortunately that did not mend matters for him. He was not adapted to work under other people. His daughter was born in July, 1884, and during a two weeks' vacation at that time, he invented the newspaper syndicate. He submitted his plans to the Century Company, and by the advice of Roswell Smith, owner of the *Century Magazine,* started in business himself.

Feeling that he must have an office of his own, he took an apartment of four rooms in New York City, one of which was his office. They were almost penniless when he had paid the first month's rent in advance. He had numerous discouragements in the launching of his syndicate. He got into debt at the start, for he agreed to pay H. H. Boyessen $250 for a story, but his returns amounted to fifty dollars less than he had to pay out. He was twenty-seven years old at this time and utterly without resources. He had not even a day's credit at a grocery store. He and his wife cooked on a one-burner oil stove badly worn, and he did the washing to save his wife. Five months after he had started, he had owing to him $1,000 and he owed $1,500 to authors. At that critical moment, Harriet Prescott Spofford sent a two-part story as a gift; he sold it for $275 and two months later his accounts showed a balance of $161 in his favor.

Nevertheless the couple were very happy. His wife helped all she could. Postage was one of the heavy items of expense but "when they had to decide between postage stamps and steaks for dinner, she always decided for postage." Husband and wife did all the office work between them. When he was serving forty papers a week, forty copies of the story had to be sent out. Making these duplicates was harassing, for to have them printed would have been ruinous, so he supplied one paper with the story free, and in return it would be set from the author's copy and supply him with the required number of galley proofs. Sometimes these came too late for the more distant papers and then he lost heavily for that week. McClure had a wonderful faculty for securing leading men and women as writers, such as Julian Hawthorne, Louise Chandler Moulton, Frank R. Stockton, Octave Thanet, Elizabeth Stuart Phelps, Brander Matthews, Joel Chandler Harris, Margaret Deland, Charles Egbert Craddock, and others.

At the end of a year McClure felt that he could afford a downtown office. John S. Phillips, a former classmate, came into the business with him and seven years later became his partner. He took the management of the office, leaving McClure to travel over the country, interviewing editors and authors and securing

material for publication. In 1887 he went abroad to get stories from English writers. He made the acquaintance of Robert Louis Stevenson to whom he became personally very strongly attached. He went on commission from Joseph Pulitzer, editor of the New York *World,* to offer him $10,000 a year for a short essay every week, to be published in the *World.* It was therefore a great thing for McClure to be able to offer him $8,000 for a serial story, entitled "St Ives." In 1888 he and Mrs. McClure went to Italy. Never before had he time to look at pictures and they opened a new world to him. After this he secured stories from Rider Haggard, Conan Doyle and Rudyard Kipling.

Early in 1892 he began to plan for a magazine, for after eight years of work in the syndicate he found himself only $2,800 ahead and realized that not much further growth could be looked for in that direction. He had no capital to start on, but he planned with Mr. Phillips to begin it by reprinting some of the best stories and articles used in the syndicate. Then came the collapse of the syndicate work in consequence of the financial panic in 1893, but fortunately a loan of $1,000 from Henry Drummond with the purchase of $2,000 stock by him in the new magazine tided them over for awhile. Financial difficulties pressed hard for the next year, but

help came from Conan Doyle and others who believing in the new venture, enabled them to continue publication.

About this time McClure discovered the ability of Miss Ida Tarbell and engaged her to write for the magazine. Within a few months in 1894 the circulation doubled because of the interest in "The Life of Napoleon" written by her. Then the "Life of Lincoln" caused it to go up to 25,000. In 1896 *McClure's Magazine* was clearing over $5,000 a month. McClure was then thirty-nine years old, and this was the first time he had been out of debt. The history of the Standard Oil Company was another great success, and so also was an investigation of crime in the large cities, and a study of city and state politics. It was the belief of McClure that the fundamental weakness of modern journalism was that men were uninformed in the topics on which they wrote. He therefore adopted the plan of paying his writers a salary while they studied the subject upon which he desired them to write. The articles written in this way were generally regarded as authoritative.

McClure had a purpose in view in editing his magazine. He says "As a foreign-born citizen of this country I should like to do my part to help bring about the realization of the very noble American Ideal which when I was a boy, was

universally believed in, here and in Europe." He believes that the dishonest administration of public affairs in our cities is due largely to carelessness and that the remedy is simply what in this land is called the commission form of government.

THE MAN WHO REVOLUTIONIZED TYPESETTING

OTTMAR MERGENTHALER

IN these days of the multiplicity of the printed page we may well remember the man who invented the linotype which enables an operator to turn out printed matter four or five times faster than it can be done by hand. From Germany came in 1872 the young man who was the inventor of this machine. He was born in May, 1854, at Bietigheim, located some twenty miles from Stuttgart. His father was a teacher, his mother also belonged to a family which for long years had practiced that profession. The boy was educated in his father's school, while he had at home work that did not permit much time for play. He helped cook the meals, wash dishes, build fires during the winter and take care of the garden in the summer. The year round he was expected to feed the pigs and cattle.

At the age of fourteen Ottmar was to begin his training as a teacher but that occupation did not offer any attractions for him. He had a

special liking for mechanics, having kept clocks in repair and made models of animals out of wood. Finally he decided to become an apprentice to a Mr. Hahl, a brother of his stepmother, and a maker of watches and clocks. The terms were four years' service without wages; the payment of a small premium; provide his own tools, but be furnished board and lodging by his employer. Ottmar had a pleasant home with him, enjoyed his work and the company of the other young men workers. He developed unusual skill and mechanical talent, and succeeded so well that Mr. Hahl paid him wages for a year before the expiration of his apprenticeship. The rarity of the young man's ability is evident from the fact that this was the first time in a business life of over thirty years that Mr. Hahl had found occasion so to recognize talent in any youth.

Ottmar sought to improve all opportunities open to him in the night school, getting in this way, his first lessons in mechanical drawing which later proved to be of much advantage to him in the drafting of his inventions. In 1872, at the close of his four years' apprenticeship, he had to decide where to locate for starting in business on his own account. The close of the Franco-Prussian War had left conditions in Germany very unsatisfactory. There was a large amount of unemployment, and increased

military duties were causing many young men to leave the country. Ottmar therefore decided to do likewise, and applied to August Hahl, a son of his late employer, and a maker of electrical instruments in Washington, D. C., for a loan of passage money to be repaid by working in his factory. The money was promptly sent and Mergenthaler landed in Baltimore in October, 1872, going at once to his destination at Washington.

Electrical instruments were unfamiliar to him, but he soon mastered their workings, and within two years was made foreman of the shop, even acting as business manager when Mr. Hahl was absent. The United States Signal Service had only been established a short time and Mergenthaler's work was largely the making of standard instruments for it, for which he appeared to have special fitness. Washington was a place where inventor's models, which were required whenever any one filed an application for a patent, were particularly built, and this brought Mergenthaler into contact with many inventors and naturally stimulated his own talent in that direction. In August, 1876, his attention was attracted to an invention of a writing machine. He examined it and saw how to remedy its defects. He was commissioned to build a machine of full size, which he did in 1877. But though much improved, it never could be a real success.

Then an attempt was made to have stereotypy take the place of lithography in the making of an impression machine, but after several efforts Mergenthaler told his employers that it could never be brought to perfection.

Finally in January, 1883, J. O. Clephane and others who were interested in backing these various attempts, told Mergenthaler to devise a machine to take the place of typesetting done by hand, which was a slow and laborious process. On New Year's Day he had dissolved the partnership with Mr. Hahl, which had existed for two years, and started in business for himself. He had been for some time in Baltimore and there he proceeded to work out the desires of his Washington friends. His own plan was to imprint a matrix—a slight bar of metal in which is sunk a character to serve as a mold—line by line, each line being justified as a unit. Experiments were tried, but without success, until one day the thought came into his mind; why not stamp the matrices or molds into type bars and pour fluid metal into them, as is done by typefounders? In this case he desired to do the whole process in one machine.

His backers needed persuasion before they were willing to endorse the new idea, but finally they gave the order to Mergenthaler to build two machines according to his plan. In 1884, when

the first of these machines was ready to be tested, a dozen spectators came to see the operation. Everything went off well. The line of type was composed by touching a keyboard. Then the fluid metal was poured over it and a finished linotype, shining like silver, dropped from the machine, while each matrix was sent back to its own receptacle. All was done within fifty seconds. It was a notable event in the history of printing.

During the next two years the inventor improved and simplified his linotype. In February, 1885, he exhibited a much improved machine at the Chamberlain Hotel in Washington, printers from all over the world being interested. A banquet followed in honor of the inventor's great achievement. But still later Mergenthaler saw that to make it more perfect he must give visibility to its motions so that the operator should be able to see what he is doing. He also aimed to produce a single-matrix machine. Other inventors were at work on simlar ideas, but the invention of Mergenthaler had points of excellence which gave it first place, chief of all being that the three processes of typesetting, typefounding, and stereotyping are combined in one machine. Whitelaw Reid, editor of the New York *Tribune,* gave the linotype its name. He was the first to use the new machine

in printing his newspaper. At the close of 1886 a dozen of them were at work in the *Tribune* offices. The Chicago *Inter-Ocean* and the Louisville *Courier-Journal* also adopted it. In 1880 big profits were gained from the linotype. The New York *Tribune* saved within twelve months $80,000. And yet the inventor's royalty was only fifty dollars per machine.

Still Mergenthaler continued to make improvments until he had at last a wonderfully perfect machine. As it now stands, its method of working, briefly told, is as follows: The operator has before him the control of about 1500 matrices. Each matrix or mold is a small flat plate of brass which has on its outer edge an incised letter, and on its upper end a series of teeth for distributing purposes. As the operator touches a key the letter desired is set free and glides in full view to its assembling place, which supplants the old-fashioned stick. In like manner each letter reaches its destination until the word is completed. Then the operator touches a key that inserts a space shaped like a double wedge. When the line of type is full, it is justified by moving a lever, and it is carried automatically to a mold where liquid metal is forced against the matrices and spaces. Then the line of type is ready to be printed. This slug, as it is called, in a moment

is hard and cool enough to pass to a tray where other slugs are swiftly added to form a page or column ready for the printing press. A set of matrices often replaces a font of type weighing two hundred times as much. A section of the machine returns the matrices to their boxes as quickly as 270 a minute, and unerringly, unless a matrix is bent by accident or otherwise injured. In a linotype three distinct operations go on together: composing one line, casting a second and distributing a third, so that the machine has a pace exceeding that at which an expert operator can finger his keys.

Since Mergenthaler's work was finished, his linotype has been adapted to composing books of the most exacting kind, mathematical treatises, and the like. It has also been arranged for printing in many languages, and for casting letters twice the ordinary length for use in newspaper headings.

Mergenthaler was beloved by all the men who worked for him. He was good to all of them and no matter how humble their station, he always had a kind word for them and a friendly word to say of them.

When worn out at last with hard work, tuberculosis developed in 1894 and five years later he passed away, but not before he had been glad-

dened by recognition of his great ability by the award of a medal from the Cooper Institute of New York; the John Scott medal by the City of Philadelphia; and the Elliott Cresson gold medal by the Franklin Institute of Philadephia.

A GREAT AMBASSADOR

HENRY MORGENTHAU

A GERMAN-BORN citizen who would not permit a German-American newspaper to enter his home, and who when asked to assist in establishing a German-speaking theatre in New York City, refused, because he said, "New York is no place for either of them. There is room here for only one language and one people," has emphatically declared himself a loyal American. That man is Henry Morgenthau who was born in Manheim, Germany, in 1856, and came with his parents and thirteen other children, to the United States in 1865. He was educated in the public schools and in the College of the City of New York; he studied law in Columbia College where he graduated in 1877. Through twenty-one years he practiced law, becoming sufficiently prominent in his chosen profession to be associated with Elihu Root in a noted law suit.

He then went into real estate business, in which he distinguished himself by his foresight and sagacity in building up neighborhoods and in taking the initiative in the erection of some of

the city's greatest buildings. He was considered an authority on financial questions. The upright straightforward character of the man is to be seen in his handling of the invitation to become a member of the policy holders' commission to protect their interests in the investigation of the Equitable Life Insurance Society. Although big men in that company were his business associates and members of the board of his own company, he felt it to be a public duty to serve as asked and to take an active part in protecting the policy holders. So he notified the officials of his own company of his views and told them that if not satisfactory, he was ready to resign as its president. However they felt that they could not afford to lose him as its head.

Henry Morgenthau has always been active in philanthropic movements and civic affairs. He founded and was the chief support for several years of the Bronx House settlement which has been a factor in making life more comfortable for Jewish immigrants upon their first arrival in this country. He has been president for many years of the Free Synagogue of New York, which he founded, and of which Dr. Stephen S. Wise has been the preacher and leader. It is regarded as one of the foremost Jewish synagogues in the city.

In 1913 Henry Morgenthau felt he had reached

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HENRY MORGENTHAU

the point where having acquired all the money he needed, he decided to devote the rest of his life to the service of this, his adopted country. The first thing that occurred to him was to help elect Woodrow Wilson president of the United States. He had sympathized with his efforts while president of Princeton University, to break up the caste spirit and to do away with the expensive upper class clubs, and as a Democrat he believed he would render a service to the country if he succeeded in getting Wilson in office. He therefore undertook the chairmanship of the finance committee of the campaign. By his influence about 80,000 small contributions were secured, instead of the money being procured mainly from the financial centers of New York.

Mr. Morgenthau was appointed ambassador to Turkey in the Fall of 1913, a position he held until 1916. He distinguished himself, while holding this office, by his wise and conciliatory way of handling the duties that came to him. He interested himself in the business affairs of Turkey. The Turkish officials found he was not seeking political advantage and he won their admiration. They made it possible for him to tour the country and he was so impressed with its vast expanse of rich, undeveloped territory, that on his return he offered to assist in the instruction of the people in American methods of

agriculture, although he declined the cabinet position of minister of commerce and agriculture urged upon him by the Turks.

When Turkey entered the Great War on the side of Germany, Mr. Morgenthau was intrusted with the interests of nine other nations. His first act was to get safely out of Constantinople the ambassadors of the Allies. The Turkish government agreed to furnish two trains, one for the English and French residents, and one for the diplomats and their staffs. He knew that Germany was seeking to influence Turkey to retain the foreign residents as hostages for the good behaviour of their countries, and particularly to protect themselves against the allied fleet. Consequently Mr. Morgenthau felt that much depended on his being able to get these people out of the city. But the arrangement was not being carried out, and the American ambassador asked Bedri, the Turkish prefect of police, what the trouble was. "We have changed our minds," he replied, "We shall let the train go that is to take the ambassadors and their staffs, but we have decided not to let the unofficial classes leave; the train that was to take them will not go."

This produced great confusion and consternation, for the ambassadors of England and France did not wish to leave their people

behind them, and the latter were unwilling to believe that they were not to be allowed to go. Bedri refused to let any one get on the diplomatic train until Mr. Morgenthau had personally identified him, so he had to stand at a little gate and pass upon each man. Laughable incidents occurred, for Sir Louis Mallet, the British ambassador, engaged in a set-to with a Turkish official, and came out best. Bompard, the French representative, was vigorously shaking a Turkish policeman. In his story, Mr. Morgenthau reports that one lady dropped her baby into his arms, another handed him a small boy, and later, one of the British secretaries made him the custodian of his dog.

The position of the foreigners was pitiable, for they had given up their quarters in Constantinople, and now found themselves stranded. They did the best they could for the night, and later the American ambassador succeeded in persuading the Turkish officials to arrange for their departure the next day. He and Bedri went to the station and saw them off, as happy as it was possible for them to be. Many testimonials of gratitude were sent to Mr. Morgenthau, one letter being signed by more than one hundred persons.

There were still other foreigners who desired to go, and he called on Talaat, the Turkish Min-

ister of the Interior, who told the ambassador that the cabinet had decided to let the English and French residents remain or leave as they might choose. He said that Mr. Morgenthau's arguments had greatly influenced them. In return for this promise he wished the ambassador to see that Turkey was praised in the American and European press for their leniency. Mr. Morgenthau immediately communicated with the representatives of the foreign papers, praising the attitude of Turkey. He also cabled to Washington, London, Paris, and the consuls. But he had hardly done this when he was alarmed to learn that the Turks were refusing to visé the passports of those who were to go. It took a long argument and much plain speaking to get Talaat to order a change, for he said that the German staff had countermanded his order, but finally Mr. Morgenthau after an interview of two hours succeeded in getting the train started.

Shortly after this event the American ambassador felt he ought to go and see if the French Sisterhood in charge of a school for girls in Constantinople was having any difficulties. His wife went with him, and as they ascended the steps five Turkish policemen followed them and crowded into the vestibule. The government had ordered all foreign schools closed that day, intending to seize the buildings. The

seventy-two teachers and sisters were to be shut into two rooms, and the two hundred girls were to be turned into the street although it was extremely cold and raining in torrents, Mrs. Morgenthau went upstairs with one of the sisters who showed her a hundred pieces of flannel, into each of which had been sewed twenty gold coins. They had also several bundles of valuable papers and securities. Mrs. Morgenthau concealed as much as she could on her person and then descended the stairs, walked past the policemen out to the waiting auto, drove to the American embassy, placed the money in the vault, and returned to the convent. She told her husband afterwards that inwardly she was terribly frightened. Yet again she went upstairs and a sister lifted a tile from the floor of the gallery of the cathedral which stood behind the convent, and showed her a heap of gold coins. These Mrs. Morgenthau hid among her garments and again walked downstairs and passed the policemen, to the auto.

By this time Bedri, the chief of police, had arrived and told the ambassador, Talaat had given the order to close the school and that they had expected to get it done before Mr. Morgenthau heard anything about it; he added "but you seem never to be asleep." The ambassador responded, "You are very foolish to try such tricks. The

sisters here have always been your friends. They have educated many of your daughters. Why do you treat them in such shameful fashion?"

Bedri consented to suspend the order until he could get Talaat over the wire. The latter told Bedri to wait awhile, but the chief exclaimed, "we will leave the sisters alone for the present, but we must get their money," so Mr. Morgenthau had the pleasure of watching Bedri search the establishment and find only a box of copper coins that they disdained to take. Finally the American ambassador persuaded Talaat to allow the sisters who were neutral to remain in possession of that part of the buildings adjoining the cathedral, on the ground that the Turkish government could not seize property facing Vatican land. The French nuns were given ten days in which to leave for France, which they reached safely.

These are instances of the interest Mr. Morgenthau took in protecting those that needed help, and indicate the influence he had with the Turks. The three great American colleges are emphatic in asserting that no one could have better served their interests or those of the suffering races of Turkey. Although technically he had no right to interfere, he certainly used all the persuasion possible to save the unfortunate Ar-

menians, but without avail, for the Turks were determined to keep their country exclusively for the Turks.

Upon his return to the United States Mr. Morgenthau was welcomed by a thousand members of merchant associations, to whom he said, "I went there every inch an American; every bit to protect American ideas, and therefore I met the various representatives of countries who came to see me, on an equal basis." It was in this spirit, when he learned that Sir Edmond Pears, a well known Englishman, had been arrested, he turned to Talaat and said; "You have violated your word to me, the ambassador of the United States, and I intend that that word shall be respected." And Talaat gave in and promptly released Sir Edmond.

THE FATHER OF THE YOSEMITE

JOHN MUIR

AMONG the wilds of Scotland, at Dunbar by the stormy North Sea, was born in 1838 a boy who always delighted in adventure and who even in his old age climbed almost inaccessible mountains and traveled long journeys into unfrequented places. John Muir was the eldest son of hard-working Scotch people and had few pleasures. He was sent to school when only three years old, his grandfather having previously taught him the letters of the alphabet from the street signs opposite his home.

School was not a place of enjoyment for John, for, like many another boy, he was mischievous and venturesome and paid the penalty by having frequent thrashings. Between the age of seven and eight he left the "Auld Davel Brae Schule" for the grammar school. Here he had three lessons a day in Latin, three in French, and as many in English, in addition to spelling, arithmetic, history, and geography. At home his father made him learn so many verses of the Bible that when he was eleven years old he knew

by heart three quarters of the Old Testament and all of the New Testament. As he himself quaintly puts it: "By sore flesh I was able to recite the New Testament from the beginning to the end without a single stop, for the grand, simple, all-sufficient Scotch discovery had been made that there was a close connection between the skin and the memory, and that irritation of the skin excited the memory to any required degree."

Boys of to-day would surely think themselves badly treated if they were given the meals John Muir and his brothers and sisters had. For breakfast they had oatmeal porridge with a little milk or molasses. Dinner consisted usually of vegetable broth, a small piece of boiled mutton, and barley scone. For tea they were given half a slice of white bread without butter, barley scone, and a drink called "content," which was simply warm water with a little milk and sugar. For supper they had a boiled potato and barley scone. The only fire for the whole house was in the little kitchen stove, the fire-box of which was eight inches long and eight inches in width and depth.

Into the monotony of this life came one day a joyous surprise when Father Muir said, "Bairns, you needna learn your lessons the nicht, for we're gaen to America the morn." For many years after that John's home was at Kingston,

near Fort Winnebago, Wis. The heavy burden of clearing and plowing the land fell on him, although he was only twelve years old. One of his particularly hard experiences was the digging of the well, into which he was lowered every morning at sunrise, and there spent the day chiseling away the hard rock, except for a short interval at noon. This slow method occupied many months and was a great trial to a boy who loved outdoor life. When he had reached a depth of eighty feet he nearly lost his life by being overcome with gas. In that pioneer existence there was much hardship. He was sick with the mumps at one time, but was kept at work in the harvest field even though he fainted more than once. For several weeks he was ill with pneumonia, but he had to struggle through without any aid from a doctor.

At fifteen years of age John Muir became eager for an education. He borrowed such books as he could get, and because his father would not let him stay up at night rose at one o'clock every morning, studying in the cellar as the warmest place in the cold winter days. He developed a talent for invention, making his own tools out of the materials at hand. He made a fine saw out of strips of steel from old corsets; bradawls, punches, and a pair of compasses from wire and old files. He constructed a time-keeper

which indicated the days of the month and of the week as well as the hours. One of his clocks kept good time for fifty years. He also built a self-setting sawmill and an automatic contrivance for feeding horses at a required hour.

Soon after Muir became of age he left home, with only fifteen dollars in his pocket, with which to make his way in the world. He went to the State Fair and exhibited his inventions, which elicited much wonder and interest. At the age of twenty-two he entered the University of Wisconsin, discovering that although he had not attended school since he left Scotland except for two months in a district school, a few weeks in the preparatory department enabled him to qualify as a freshman. He spent four years at the university. In his book, entitled "My Boyhood and Youth," he says: "I earned enough during summer vacations to pay thirty-two dollars a year for instruction, my books, acids, retorts, glass tubes, etc. I had to cut down expenses for board to half a dollar a week."

During this period he invented an apparatus which, when attached to his bed, not only awakened him at a definite hour, but simultaneously lighted a lamp. After so many minutes alloted for dressing, a book was pushed up from a rack below the top of his desk, thrown open, and allowed to remain there a certain number of min-

utes. Then the machinery closed the book, dropped it back into its place, and moved the rack forward with the next book required.

Having completed his work at the university, John Muir started on a trip to Canada on foot. He worked in a mill there for a year, improving its machinery and inventing appliances for increasing its product. Then he went to Indianapolis and in a carriage and wagon factory was offered the position of foreman with a prospective partnership. But one of his eyes through an accident was injured, and after several weeks of confinement in a dark room, he determined "to get away into the flowery wilderness to enjoy and lay in a large stock of God's wild beauty before the coming on of the time of darkness." He therefore went on foot on a botanizing tour to Cedar Keys on the Gulf of Mexico, and later traveled to Cuba. In 1868 he went to California. There in the Yosemite, he lived for many years, occasionally taking trips to still wilder places. He climbed the most inaccessible mountains and discovered some sixty-five glaciers. One of his remarkable feats was crawling along a three-inch ledge to the brink of the 1,600-foot plunge of the Upper Yosemite creek to listen, as he said, "to the sublime psalm of the falls."

In 1879 he to went Alaska, and, while there he had an adventure which revealed the indomi-

table character of the man. Mr. Muir and his friend, S. Hall Young, were together on a mountain-climbing expedition. In brief the story as told in Mr. Young's book, "Alaska Days with John Muir" is as follows:

"Then Muir began to slide up that mountain. A deer-lope over the smoother slopes, a sure instinct for the easiest way into a rocky fortress, an instant and unerring attack, a serpent glide up the steep; eye, hand, and foot all dynamically connected, with no appearance of weight to his body. . . . Fifteen years of enthusiastic study in the Sierras had given him preëminence over the ordinary climber. . . . No Swiss guide was ever wiser in the habits of glaciers than Muir. . . . Not an instant when both feet and hands were not in play; often elbows, knees, thighs, upper arms, and even chin must grip and hold. Clambering up a steep slope, crawling under an overhanging rock, spreading out like a flying squirrel, and edging along an inch-wide projection while fingers clasped knobs above the head, bending about sharp angles, pulling up smooth rock faces by sheer strength of arm, and chinning over the edge, leaping fissures, sliding flat around a dangerous rock breast, testing crumbling spurs before risking his weight, always going up, up, no hesitation, no pause—that was Muir."

While climbing Mr. Young met with an accident which deprived him of the use of his arms, both shoulders being dislocated. In this dilemma he was practically helpless, but Mr. Muir was equal to the occasion and in a marvelous way climbed over glaciers and down the steepest crags, supporting his friend. It took all night to do it, but he succeeded. The story is a thrilling one. It concludes thus: "Sometimes he would pack me for a short distance on his back. Again taking me by the wrist he would swing me down to a lower level before descending himself. Holding my collar by his teeth as a panther her cub, and clinging like a squirrel to a tree, he climbed with me straight up ten or twelve feet, with only the help of my ironshod feet scrambling on the rock. All night this man of steel and lightning worked, never resting a minute, doing the work of three men, always cheery, full of joke and anecdote, inspiring me with his own indomitable spirit. He gave heart to me."

In one of his climbing expeditions he suddenly found the ground under him slipping. Instantly he threw himself on his back, spread out both arms, and so took a ride on an avalanche.

But though Muir was so great a traveler, going in 1903 and 1914 to Europe, the Caucasus, Siberia, Japan, China, India, Egypt, Australia,

and New Zealand for botanical study, and even at the age of seventy-three making a trip to the wilderness on the Amazon River and then to the jungles of Africa, it is to his love for and investigations in the Yosemite that we are indebted for our possession as a nation of the most noted and wonderful of our national parks. Largely because of his earnest and persistent efforts the Yosemite was made a national reserve in 1890. It is thirty-six miles in length and forty-eight in breadth. The Yosemite Valley lies in the heart of it. It includes two rivers, innumerable lakes and waterfalls, forests, ice-sculptured cañons, and mountains twelve thousand feet high. In his book, "The Yosemite," the wonders and beauty of this marvelous region are fully described by this man who had given years of study to it. Other books written by him are "Mountains of California"; "Our National Parks"; "My First Summer in the Sierra"; and many magazine articles. His story of "Stickeen," a favorite dog in Alaska, ranks with "Rab and His Friends," and "Bob, Son of Battle." In each of these one glimpses the far-reaching knowledge of nature and animal life that he acquired.

In the spring of 1880 Mr. Muir married Miss Louise Strentzel, daughter of a Polish physician who had come to California in 1847. Muir had a happy home, but much as he loved it and his

friends, he loved nature more ardently. His devotion to it was the master passion of his life, and he himself recognized that he was "hopelessly and forever a mountaineer." "Few have loved beauty as I have, enough to forego so much to attain it." His home was a ranch forty miles from San Francisco. As soon as his vineyard was ready for the summer he would go to his loved mountains, where for three months he enjoyed every moment, living mainly on bread and tea. He fairly reveled in an earthquake that he might see the changes wrought by such a convulsion of nature. He would climb to the top of swaying branches to feel the pulsing of the heart of a storm. After these experiences he was wont to say, "We have met with God." Tyndall said Muir was the greatest authority on glacial action the world has known, and Agassiz and Le Conte held a similar opinion. To the largest glacier Muir's name has been given. When he discovered it, it was fully a mile and a half in width and the perpendicular face of it towered from four to seven hundred feet above the water.

A writer in the *Craftsman* has well said: "Muir was Scotch to the backbone, yet America claims him as her own, so earnestly has he studied our trees, so closely is he identified with the wonders of the great West, so loyally has he labored to

preserve our natural beauties when from time to time there have been those of our countrymen who would have wrested them from us. A mighty Alaskan glacier bears his name, a noble forest of California redwoods—Muir Woods—and it is likewise fitting that a little mountain daisy is his namesake," for he would speak of a tiny fern as "one of the bonnies of our Father's bairns."

A GREAT JOURNALIST AND PHILANTHROPIST

JOSEPH PULITZER

A MAN of remarkable characteristics, a very dynamo of mental and physical force, was developed in a young immigrant lad, aged seventeen, who landed in Boston in 1864. He was born in Mako, in Hungary, the son of an Irish mother and a Jewish father. Upon the death of the latter Joseph decided not to be a burden to his mother and therefore attempted to enter the army. He was rejected, however, because of a defect in one eye. Still cherishing the idea of a military life and hearing of the war with Mexico, he started for the United States. He was practically penniless when he arrived in Boston, and could speak only a few words of English.

Meeting a fellow countryman who had just enlisted in a German cavalry regiment being raised in New York City to take part in the Civil War, he concluded to do likewise, and as men were much needed he was enrolled and served until the end of the conflict.

Joseph, full of fire and energy, was always

ready to take the part of the weak and helpless. One day he could not endure seeing the brutal treatment of a fellow soldier, and without regard to army discipline dared to knock down the officer who was inflicting it. Of course this action involved him in trouble and he was arrested and imprisoned to await court-martial. Meanwhile, an old general who was very fond of a good game of chess heard that this young Hungarian was a clever player of it. He sent for him and many hours were passed in chess-playing, during which the general became interested in the young man, quickly discovering that he had a bright mind and could think well. Fortunately for Joseph, his new friend determined to obtain his release and accomplished his purpose.

After the army was disbanded, the immigrant lad had several hard experiences. One night, having no other place in which to sleep, he chose the public park as the only one available. But he did not know that the city did not permit people to make it a resting-place at night, and when the policeman ordered him to move on he did so, until he came to French's Hotel, in Park Row. Learning of his plight, a man in charge of the furnace told him he might sleep in the furnace-room. Before the night was over, however, he was again sent on his way by another man who later came on duty. Like a veritable

fairy-tale was the experience of Joseph Pulitzer, for in after years he became owner of the building out of which he was so unceremoniously turned during his homeless wandering.

Soon after this adventure he decided to go West. What little money he had took him as far as East St. Louis. He desired to go across the Mississippi, but could not pay the ferryboat fare, so he offered to serve as fireman on the ferry and pleased the captain so well that he continued to work at that task until he later secured a place as stevedore on the St. Louis wharves. Various positions did he fill, but he was frequently handicapped by his defective eye-sight.

A dangerous and hard task was given him by a St. Louis man. The charter of the St. Louis & San Francisco Railroad had to be recorded in every county of the state and the papers in the case personally filed with the clerk of each county. As Missouri was at this time infested with bushwhackers and guerrillas it was a risky undertaking for any man to make the trip. Joseph was entirely ignorant of the conditions and eagerly started out on horseback. He completed his task and returned safely with valuable knowledge, which no other man then possessed, of every county in the state. Real estate men found the information he could give them of great value.

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JOSEPH PULITZER

Even during his hard experiences he had been a great reader and he now began to study law, his late journeyings having naturally given him an insight into some of its phases. In 1868, four years after he landed in this country, he was admitted to the bar. Ambitious and full of energy as he was, he soon found that life as a young lawyer was altogether too tame for him. Gladly, therefore, he accepted the post of reporter on the *Westliche Post,* a daily newspaper of which Carl Schurz was at that time the editor. So well did Mr. Pulitzer succeed in this new undertaking that before long he became managing editor and obtained a proprietary interest in it. He was never afraid of any one's opinion and never hesitated to say what he believed as to the right or wrong of any public affair.

The tide of fortune had now definitely turned for Joseph Pulitzer. He had found what he could do successfully, the work which later brought him fame and riches.

In 1869 he was elected a member of the Missouri Legislature, and in 1874 to the State Constitutional Convention. In 1872 he was a delegate to the Cincinnati Convention which nominated Horace Greeley to the presidency, and in 1880 was a member of the platform committee of the Democratic National Con-

vention. He forged ahead so rapidly that honors came to the immigrant and destitute lad of so short a time ago.

In 1878 he founded the *Post-Dispatch* by buying the *Dispatch* and uniting it with the *Evening Post*. This brought him a yearly income of $150,000, and as he was now thirty-six years old he decided to go to Europe for study and rest. But just then he learned that the New York *World* was for sale, and despite the warnings of his physician that health and eye-sight might be sacrificed if he did not rest, the temptation was too great to be resisted. In the twenty-three years of its existence it had not been much of a success, but Mr. Pulitzer soon made a change. With all the energy at his command he worked until he made it one of the leading papers of the country.

He has been called "a great journalistic force whether for good or evil." Unquestionably he had high ideals. The following words expressed his conception of a great newspaper: "An institution which should always fight for progress and reform; never tolerate injustice or corruption; always fight demogogues of all parties; never belong to any party; always oppose privileged and public plunder; never lack sympathy with the poor; always remain devoted

to the public welfare; never be afraid to attack wrong."

Unfortunately he, like many another man, did not always live up to his ideals; he permitted in the *World* a notable disregard for truth in its news columns, and failed to observe the rights of privacy in his eagerness to obtain information that would attract popular attention, so that this part of the paper was often by no means a creditable production. It was frequently public-spirited in its editorials. In relation to a proposed Government bond issued in 1893 he demanded that it be thrown open to the people at large at its real value, instead of permitting a group of financiers to reap a large profit and thus rob the government. To prove his honesty of purpose he offered a million dollars in gold for the bonds. He succeeded in his aim, for the public were given fair opportunity to purchase the bonds. Mr. Pulitzer did loyally live up to his ideals in regard to fighting against special rights and special classes and as champion of the oppressed. He insisted always upon liberty being a reality and not merely a name. An advertiser who paid a big price for his pages was not allowed to influence the editorial policy in the slightest degree.

Even after he was stricken with blindness

Mr. Pulitzer's activity and energy were marvelous. His health by this time was broken and he suffered so greatly that he was compelled to live away from his family and friends much of the time, mainly on his yacht, for there he could secure the quiet he needed. He kept three secretaries with him, whose duty it was to keep him fully posted as to what was happening all over the world. At breakfast they had to furnish him with a review of new books, plays, music, and art. At lunch they were expected to supply descriptions of important persons and events. He was continually absorbing knowledge and then dictating material for his paper or sending cablegrams to the office. Thus for years did he wonderfully control and really edit the *World,* although he rarely entered its offices.

In his adopted country Mr. Pulitzer had made millions of money, and while remembering generously his family and those who had served him he was anxious to benefit his fellow citizens. He gave Columbia University two million dollars to establish a school of journalism, that men and women writers might have special training for their work. This school has had a large number of students and has attracted wide attention and approval. He also provided the Pulitzer Scholarship Fund of $250,000 and funds for the support of three graduates of the school

who should pass examinations with the highest honors, to enable them to spend a year in Europe studying the political, social, and moral conditions. In all his planning for the School of Journalism, he said, his chief end in view was the welfare of the Republic.

He left an annual prize of a gold medal to be given for the most disinterested and meritorious public service rendered by any American newspaper during the year. A prize of one thousand dollars was to be awarded annually for an American novel that should depict the wholesome atmosphere of American life and the highest standard of American manhood and womanhood.

To his sons and sons-in-law he left his capital stock in the two papers he had founded, enjoining upon them the duty of preserving, perfecting, and perpetuating the New York *World* newspaper, which he had striven to create and conduct as a public institution from motives higher than mere gain.

To the Metropolitan Museum of Art in New York City he bequeathed $500,000, and to the Philharmonic Society a like sum.

A SERBIAN-AMERICAN SCIENTIST

MICHAEL PUPIN

AMERICA worked considerable transformation in a Serbian lad who ran away from his native land in 1874, and nine years later graduated from Columbia College, won a PH. D. from Berlin in 1889, and within fifteen years from the time he landed, became a member of the faculty of Columbia.

This lad, Michael Pupin, by name, was born in Idvor, Hungary, descended from Serbian ancestors who settled in the Province of Banat, north of the Danube, and were guaranteed political and spiritual freedom on condition that they should defend Austria against the Turks. They kept their contract but the Emperor broke his end of it by turning them over to Hungary and making them vassals of the Magyars. His father saying "The Emperor has betrayed us. I will see that you never serve in his army," made a vivid impression on the boy's mind. He had heard of America and of Lincoln, "the greatest man," he calls him, "who ever lived, because he

kept his pledged word." So the United States attracted him and while a school boy at Prague, he one day, sold his watch, his books, all his clothes except those he wore, and with the proceeds and the small monthly allowances received from home, ran away to America. When he landed, he had just five cents in his pocket.

Ellis Island and immigration officials did not exist in those days so he had no trouble in getting admitted. He was hired by a Delaware farmer who treated him well. The daughter of the house taught him English in the evenings. But he came to the conclusion after a while that farming did not appeal to him, so he went to Philadelphia where his talents for drawing secured him a place with a photographer, retouching negatives. Later, he went to New York and took work in a cracker factory.

He had made good use of the short time he had been in this country for he was now able to read English with ease. He became interested in the scientific articles, published in the *Sun,* a daily paper of New York, and he decided to get an education and become a scientist. It was considerable of an undertaking but he was not afraid of the hard work involved. He had already been improving his opportunities and had read the speeches of Webster, Clay, Calhoun and Lincoln. The Gettysburg speech of President Lincoln

he had committed to memory, and also Bryant's "Thanatopsis." This was good training for his English, but he felt his pronunciation was faulty, so he went to the top gallery of the theater where he could hear Edwin Booth, Lawrence Barrett and John McCullough. In the same year he began attending night school, taking lessons in drawing, physics and chemistry.

When he was twenty he had saved $311 and entered Columbia College, working his way by various jobs. During the first summer vacation he earned $75 besides his board, by hay-making in New Jersey. For the remainder of his college course he undertook coaching for fellow students. The indomitable perseverance of the young man is evident in the steadiness with which he pursued his aim of getting an education, for he triumphed over all difficulties and graduated from college in 1883. Then he went abroad and studied mathematics and physics in Cambridge, England, and Berlin, Germany. He received the honor of the John Tyndall Fellowship from Columbia College.

Returning to America, this foreign-born young man who had so signally made good, was appointed instructor in mathematical physics in his alma mater. In 1892 he continued his upward climb for he was made adjunct professor of mechanics, and in 1901 professor of electro-

MICHAEL PUPIN

matics; in 1911 director of the Phœnix research laboratories. Before this in 1906 he had been elected a member of the National Academy of Sciences.

To-day Professor Pupin is known the world over wherever electrical problems are being solved. He is a scientist who delights to unravel complex problems. He makes investigations simply because he desires to know things, not because with the knowledge gained he will have a commercial advantage, although he claims "there is no worth while purely scientific problem, the correct solution of which will not some day have a practical value." His discoveries in pure physics have frequently been the foundation on which others have built, as for instance, his theory of selective tuning for separation of mixed electrical operations was completed two years before Marconi announced his wireless, and was used by Marconi and Co. as a basis for selective tuning by which the messages of different wave lengths can be received. "Long before the wonder working vacuum tube rectifier was brought out, Professor Pupin had developed the principle and apparatus for rectification of alternating electrical forces."

His most important contribution for practical purposes are his researches in electrical resonance and the magnetization of iron. In the

beginning of long distance telephony there was great trouble with interference by unaccountable noises as buzzing, singing, clicking sounds. This difficulty was solved by the application of Pupin's theory of the propagation of electrical impulses over a non-uniform conductor. This practically worked out was called "Pupin's coil," and the patents were acquired by the Bell Telephone Company, and the German Telephone Company. The coil consists of insulated wire wound on very finely laminated iron cores encased in water-tight boxes.

The professor takes out few patents because he wants to be sure that what he patents is of value. As he puts it, "I'd rather have a few good children than a lot of poor ones." After Roentgen's discovery the first X ray for surgical work was made by Professor Pupin. In 1917 he presented to the United States Government the use of his invention eliminating static interference with wireless transmission.

Pupin's work with his class of students has been of immense value to the world for he has inspired them to do good and valuable work. He is a strong teacher, having not only intellectual power of unusually high degree, but he has a personality that attracts. He has also a fine sense of humor, and is a great athlete as well as a great scientist. He feels honored in being an

American citizen but he has by no means forgotten his native land and has been active in the interest of Serbia. At the outbreak of the Balkan war in 1912 he was appointed by the Serbian government honorary consul general at New York. In 1915 he organized among Columbian students relief workers for Serbia.

Honors have come to him not a few; he was given the degree of Ph. D. by Berlin; an honorary degree from Johns Hopkins; the Elliot Cresson medal for distinction in Physics; the Hebert prize of the French Academy in physics, and the gold medal of the National Institute of Science. Thus the Serbian boy has made good in his adopted country.

FROM A SYRIAN VILLAGE TO BOSTON

ABRAHAM MITRIE RIHBANY

FROM a Syrian village home where the life was so primitive that he knew not "what a library was; where he never saw street lights, glass windows, iron stoves, public halls, newspapers, structural iron of any kind, or anything that rode on wheels; where he never heard a piano but once (in the home of an American missionary) and where public education, citizenship, a national flag, and political institutions of any description," were unknown to him, is indeed "a far journey" to a pastorate of a well-to-do church in Boston, but that is the actual experience of Abraham Mitrie Rihbany.

He was born in the town of El-Shweir, in the province of Mount Lebanon, Syria, in Asiatic Turkey. His father was a stone mason, a contractor and builder, highly respected by his business associates, a man of simple, unaffected dignity and remarkably industrious. His mother was alert, resourceful, and absolutely fearless. In the family she was generally regarded as a

wise counsellor. Their home was a typical Syrian one-story building of rough hewn stone and consisted of two rooms—a living room and a store room. It had one door and two windows without glass but with wooden shutters. The earthen floor was painted frequently with mud, and rubbed with a smooth stone until it shone. It was furnished with straw mats and cushions, and in the winter season with soft and fluffy sheepskins. There were no chairs and no bedsteads. The family sat and slept on the earthen floor. The bed was of thick cushions for a mattress, stuffed with wool or cotton, a pillow of the same material, and a quilt for covering.

Abraham was sent to a school kept by his uncle, Priest Michael of the Holy and Apostolic Greek Orthodox Church, when he was only three years old. Here he was taught the alphabet. In those times very few men in El-Shweir could read or write. The uncle combined the duties of teacher and of weaver, giving his eyes to the weaving and his ears to his pupils. At the end of the first year English missionaries opened a school in the town and therefore his uncle had to abandon his educational work as the mission school was far better equipped than his. Abraham went to this school which interested him much. It was a revelation to him to see the clock that struck the hours and "the stove which had fire

inside of it, and from which a long pipe carried the smoke outside the room." Fancy pencils, writing paper, chalks, new clean little books and a large Bible, the first he had ever seen, were all marvelous wonders to him. The devotional service held every morning made a strong impression on the boy.

When he was six years old his parents removed to Betater as his father was in charge of the building operations of a silk spinning factory there. In the second year of their stay in the town an American mission school was opened so he was transferred to it from that of the Maronite priest. At the age of nine his father took him out of school and had him begin to learn his trade of stone making. As the son of the "Master," Abraham was allowed special privileges. At the age of fourteen he was allowed to do actual building and at the age of sixteen he was classed and paid wages as a "Master."

His father was much pleased with his son's progress, but Abraham himself was discontented for he did not enjoy the prospect of being a stone mason all his life. He had made the acquaintance of Iskander, a boy of about his own age, who was attending an American boarding school, ten miles from Betater. The two boys practically lived together during Iskander's vacation and often stayed up the whole night talking, for Abraham

craved knowledge. The outcome of this friendship was that he was permitted to go to the same school. This news was the talk of the town for several days. "Just think of it! Abraham, the Master's son, is going to school at the advanced age of seventeen."

In October, 1886, he became a student in the high school of Suk-el-Gharb. His experiences there were very strange to him. He says in his book, entitled "A Far Journey," that the first elevating influence he felt was having a bedstead of three pine boards and two saw-horses. From force of habit he found himself on the floor twice during the first night. The study of the Bible —the great and holy book of his own Church— interested him more than anything else. It was the wonder of wonders to him that he might himself read and study it. After a year in the school he joined the Protestant Church, without consulting his parents, who upon learning it did not seem to raise much objection.

At the end of the second school year his father told him he could no longer afford to keep him in the school. Of his twelve children, six were still to be cared for and he was getting old, and had suffered serious business reverses. Abraham consulted the head of his school and was offered the position of a teacher in the primary school attached to the high school. This offer

was promptly accepted at a salary of three dollars a month and his board. He taught there for two years, and one year in the city of Zahlah.

During this period he devoted himself particularly to the study of the Arabic language and literature. He also began to realize that an educated youth in Syria had no opportunity to develop the higher qualities and that he was watched by the government as a possible revolutionist. Naturally therefore he was eager to emigrate and it seemed to him "a moment of divine significance" when, meeting two friends, he learned that they were on the point of starting for America. They urged him to go with them, promising to lend him such financial aid as he might need until he reached New York. He at once decided to go with them, first making a visit home. His parents, although surprised, were not averse to his going, and with a devout prayer from his mother, imploring "the all wise Father to guide and prosper him," he left his native land.

On the evening of October 6, 1891, he reached New York, with only nine cents in his pockets, and owing forty dollars to his friends. The day after he was impressed with the contrast between his own country and the liberty allowed in America, by witnessing a parade and mass meeting of a labor union. His friends introduced him to a countryman who kept a restaurant and lodging

house, and then left him, after he had given each of them a note due in six months for the amount he owed them. By a fortunate circumstance he met a former acquaintance who lent him five dollars. He had to pay fifteen cents for a night's lodging and decided that was more luxury than he could afford, so leaving his host, Abraham, he sought the abode of one named Moses, who offered him a platform for five cents a night, upon which he could spread the Syrian bedding that he had brought with him. But finding that he had to share his platform with two other men who had been stealing and who had a fight over it until late at night, he felt obliged to pick up his bed and return the next morning to Abraham.

Through Moses, however, he obtained his first position, that of bookkeeper. He found that it included duties of sweeping out the shop, and building a fire in the stove and carrying out the ashes, which seemed to him a humiliation. His salary of twenty dollars a month did not allow him money with which to buy clothing suitable for winter, for he had to keep some to pay back his friends. By advice from an acquaintance he bought a heavy coarse shirt, said to be made of camel's hair.

Not quite six months after he had landed in this country he applied for admittance to American citizenship. Thrilling with emotion he took

the oath of allegiance, for he felt that now he had become a "citizen of a country whose chief function was to make free, enlightened and useful men." Early in the spring Mr. Rihbany was offered a position which he felt was more in sympathy with his ideals and his desires. He was invited to become the literary editor of "Kowkab America" (the "Star of America"), the first Arabic newspaper ever published in the western hemisphere. But the dreams he entertained of glory and fame were destined not to be realized, and at the end of a year he decided to go to Pittsburgh, where an acquaintance, a graduate of the Syrian Protestant College at Beirut, was engaged as a missionary among the Syrians there. The reason for his decision was that he felt he was making no progress in the real life of America as long as he remained in the Syrian colony. During his stay of eighteen months in New York City he "did not have occasion to speak ten sentences in English."

Mr. Rihbany and his friend planned to travel together to lecture before churches and societies, sell silk goods, and by other means to secure financial aid to enable them both to enter a great university, but the plan failed completely and Mr. Rihbany found himself left alone. He tried to get engagements to lecture but did not succeed very well, as his command of the English lan-

guage was imperfect and this made it difficult. His lack of familiarity with American social customs also caused him embarrassing moments. In Syria it is customary to remove one's shoes at the door but keep the fez or turban on your head. Mr. Rihbany states that upon going into American homes it was not easy for him to realize instantly which extremity to uncover. "Eating butter on bread, a dessert with every meal, and sitting in rocking chairs seemed to him to be riotous luxuries," and it took him a long time to get accustomed to them. His story helps one to understand how difficult it is for the foreigner to familiarize himself with our ways and customs.

Although unable frequently to obtain money enough to live without the strictest economy, he gained much during these travels from the contact with good men and women and by admittance into homes of culture. American churches and public schools also stirred him greatly. In 1903 Edward Everett Hale said to Mr. Rihbany, "How in the world do you manage to speak English so well?" He feels that he owes a great debt to his study of the language of the English Bible, and from living men in all walks of life he increased his vocabulary. Occasionally however he would misapply ordinary words in a way that was laughable, as for instance after eating a well appointed dinner in the home of the Lutheran

minister, he said to the hostess, "Mrs. S., I have greatly enjoyed your grub."

In the early autumn of 1893 he first felt that he was really able to hold the attention of an American audience. It was at a union meeting and his subject was "Turkey and America Contrasted." The applause of his audience told him that he was making an impression and this was emphasized when the minister told him that he would soon make a very effective public speaker.

It was in the same town that he heard sung for the first time the song "America." The line, "Land where my fathers died" made him envy every one who could sing it truthfully. For years afterwards he seemed to himself to be an intruder whenever he tried to sing those words but at last he came to realize that all those "who fought for the freedom I enjoy, for the civic ideals I cherish, for the simple but lofty virtues of the typical American home which I love, were my fathers and therefore I could sing 'Land where my fathers died,' with truth and justice."

In 1895 Mr. Rihbany matriculated in the Ohio Wesleyan University, but at the end of his second term he had to quit college because of lack of money. In 1896 he was invited to supply as regular pastor the Congregational Church in Morenci, Mich., for the winter, but he declined, feeling that he was not fitted for such a

position. He then went west on a lecturing tour and on his return the church repeated its offer, but though he took it for a brief season, he again declined it as he felt he wanted to devote himself to speaking for the gold standard in the political campaign. He studied the monetary question thoroughly and had the satisfaction of knowing that his speeches had the approval of the Republican leaders, and of having helped to save his country from impending ruin. He says "Just think of me, the child of ages of oppression, now having a great country to serve, to defend."

This campaign over he finally accepted the call from the church in Morenci, Mich. to become its pastor. At this time he married an Ohio lady. When a war between this country and Spain seemed impending, he felt he must enlist as a private soldier and wrote to his father to ask his opinion and consent. He replied in a remarkable letter telling his son that "as long as you are an American citizen, you must fight for your exalted government. America has done much for you and you ought to pay her back by fighting her enemies as an honorable man." He was not called upon however to render this service, as Spain gave up the fight. During the years he was in Morenci the church prospered so that an addition had to built to accommodate the growing congregation.

In 1875 he and his wife visited Syria and received a royal welcome. All the clans of the town called upon them in groups of fifties and hundreds. Upon their return to America he spent two years with a church in Mount Pleasant, Mich., and nine with one in Toledo, Ohio. Then he was called to the Church of the Disciples, in Boston, where he is endeavoring to serve his adopted country as a minister of the gospel, helping "to solve America's great problems and to realize her wondrous possibilities." He says, "I have traveled from the primitive social life of a Syrian village to a great city which embodies the noblest traditions of the most enlightened country in the world. I have come from the bondage of Turkish rule to the priceless heritage of American citizenship."

A PIONEER IN GOOD CITIZENSHIP

JACOB A RIIS

IN THE quaint old town of Ribe, on the Danish seacoast ,was born in 1849 a boy named Jacob A. Riis. When he was fifteen, to the great disappointment of his father, who was senior master in the Latin school of Ribe, he decided to become a carpenter. At the end of four years he received the certificate of the guild of his trade in Copenhagen. Shortly afterward he sailed for America, arriving in New York in 1870.

It was not easy for him to get work in New York, so he joined a gang of men going to Brady's Bend, on the Allegheny River, where he started to build huts for the miners. That was followed by brick-making and by work in a lumber-yard. He had various hard experiences in which he knew not where to earn enough for either food or lodging. Often he slept in doorways and suffered much because of insufficient clothing. He wandered from place to place, getting a job now and then, oftentimes hungry and often cheated out of his earnings.

After three years of this sort of thing he was

fortunate in being offered employment as a reporter in New York City. This was the beginning of his success. He spoke out of a hard experience when he said: "As to battling with the world, that is good for a young man, much better than to hang on to somebody for support. When you have fought your way through a tight place, you are the better for it. I am afraid that is not the case where you are shoved through."

Jacob Riis was a man of overflowing vitality and great energy, who, when he saw a wrong, was immediately seized with an intense desire to set it right. Sometimes this brought him trouble, but that in no way abated his ardor to make the world better.

An opportunity to become editor and then the owner of the *South Brooklyn News* naturally appealed to a man of his type. After becoming his own editor, reporter, publisher, and advertising agent, he exerted all his energy in making his paper "go."

Two things of great importance in his life occurred about this time. In a Methodist revival meeting Mr. Riis decided to live the life of a Christian man and straightway consecrated his pen to the exposure of evil and the support of good. He had been sorely troubled by lack of letters from home, his anxiety being augmented

by the fact that from boyhood he had set his heart upon winning the love of the daughter of a wealthy man in his native town. Since his absence from Ribe she had become engaged to another man. Shortly before Mr. Riis became an editor, however, he received word that her fiancé had died. Thereupon he sent a loving letter telling her of his unchanged love. The summer and fall had passed, but no word of any sort had reached him from his home town. At last, to his great joy, the message came for which he had been so ardently longing, the promise that made his stormy life full of happiness. Fortunately he had a chance soon after this to sell his paper for five times the amount he paid for it, and after disposing of it, he took the first steamer for Denmark. Three months later he brought his bride to America.

For several months Mr. Riis earned their support by advertising merchandise by means of a stereopticon. But he was desirous of getting in again as a reporter on one of the metropolitan newspapers and finally succeeded in obtaining a position on the New York *Tribune*. It was hard work with little pay, not enough to live on. After some time he was assigned to police headquarters on Mulberry Street, where he found his life-work. It is interesting to note that Mr. Riis confessed to being almost afraid of the hard task

before him, but in his characteristic way he said: "I commended my work and myself to the God of battles who gives victory, and I took hold. If I were to find that I could not put the case before him who is the source of all right and justice, I should decline to go into the fight." The secret of Mr. Riis' success in his reform work is doubtless to be found in that decision. It was characteristic also that he did not wait until his return home to tell his wife, but before he began his new work he telegraphed her, "Got staff appointment. Police headquarters. Twenty-five dollars a week. Hurrah."

Out of the experiences he met in this new task he became familiar with the terrible conditions existing in the slums of New York City, and did not rest until he had brought them to the attention of the public to have them remedied. He was a very thorough man in all his work. One summer there was fear of an epidemic of cholera. Picking up the weekly analysis of the water of the Croton River, the source of the city water-supply, he noticed that for two weeks there had been "just a trace of nitrates" in it. His suspicions were aroused and he at once questioned the health department chemist. He received only an evasive reply. Within an hour Mr. Riis had learned that these were indications of sewage contamination and realized the peril. He spent

a week, following to its source every stream that discharged into the Croton River and photographed evidence of what he discovered. He told his story in the newspapers, illustrating it with his pictures. The city was startled and the board of health sent inspectors to the watershed; their report was that things were much worse than Mr. Riis had said. The city took preventive action at once at the cost of several million dollars.

Interesting as the story is, space permits only a brief summary of the good things in the accomplishment of which Mr. Riis was the moving spirit. He persisted in showing the dreadful conditions in the police lodging-houses, where dirty tramps and castaways, old and young, lay at night on planks or on the stone floor and then went out in the morning carrying the seeds of disease to the homes where they begged their living. Finally by a change in the laws the care of vagrants was taken out of the hands of the police, and provision was made for the care of the honest, homeless poor. Separate prisons for women, with police matrons in charge, also resulted from the investigations made.

With a camera Mr. Riis took evidence of the overcrowding in the tenements in Mulberry Bend. To cite but one instance, fifteen were found in a room which should hold only four or

five at the most. There was no pretense at beds. The lodgers slept there for "five cents a spot." In the twenty years that Mr. Riis was a reporter in that neighborhood not a week passed without a crime or murder. At last, after long fighting, the city bought the Bend and the old houses were torn down. A small park was placed there, and the section that had been noted for its crime and wickedness became the most orderly in the city.

Mr. Riis' home was in the country and his children gathered flowers for their father to carry in to the poor people. The joy with which they were received led him to enlist the help of the King's Daughters in receiving and distributing flowers. Practical assistance followed in the hiring of a nurse to visit in the homes and give the friendly lift so often needed. From this beginning has grown the King's Daughters Settlement House at 50 Henry Street, New York. The name of Jacob A. Riis has been given to the present abode.

Realizing the effectiveness of his newspaper and magazine articles, publishers asked him to write in book form. His first response was entitled, "How the Other Half Lives." This was followed by "The Children of the Poor," "The Battle with the Slums," "Children of the Tenements," his autobiography, "The Making of an American," and "Theodore Roosevelt, Citizen."

JACOB A. RIIS

He was much stirred by the sight of the little children in the East Side factories. False certificates asserting they had reached the age of fourteen were permitted because of lack of birth registration. With characteristic thoroughness Mr. Riis learned from a doctor that the latest age at which a child cuts his "dog teeth" is twelve years. Then he visited the factories and obliged the children to let him see their teeth; if they had not their "dog teeth," that was conclusive evidence that they were not yet fourteen. The investigation resulted in a change in the law that freed the children from factory work.

Good teaching and decent schools were other demands made by Mr. Riis. He was ever working for the good of the boys and girls. Too many schools were overcrowded and there was insufficient light for the children to see slates and blackboards. Dark basement rooms, thirty by fifty-two, full of rats were the only playgrounds for a thousand children. In the whole of Manhattan there was but one outdoor playground attached to a public school and that was an old burial ground. Mr. Riis' showing of the facts aroused the city. The whole school system was remodeled and sixty new schoolhouses were built. The Playground Association was formed and small parks created to let daylight into the slums. This resulted in the reduction of the death-rate

from 26.32 per thousand in 1887 to 19.53 in 1897.

If you wish to hear more of it, read Mr. Riis' book, "The Making of an American." All this and much else were the outcome of the patient efforts of a poor immigrant, who came to America from Denmark at the age of twenty-one, with all the odds against him at the start, but of whom ex-President Roosevelt has said "he was the most useful American of his day. He came the nearest to the ideal of an American citizen." It has also been said of him that "no man has ever more vitally and faithfully expressed and interpreted the American spirit. He was a brother to all men and especially to the unfortunate."

His love for his native land was deep and loyal. His enthusiasm for all that was connected with it was strong, and he never permitted any slight put upon its national flag to go unrebuked. But when he lay ill at the home of a friend in Denmark, after he had gone home to visit his mother once more, he suddenly saw from the window a ship flying the United States flag. "Gone," he said, "were illness, discouragement, and gloom. Forgotten weakness and suffering. I shouted, laughed, and cried by turns. I knew then that it was my flag; that I had become an American in truth. And I thanked God, and, like the man sick with the palsy, arose from my bed and went home healed."

A GREAT AMERICAN SCULPTOR

AUGUSTUS ST. GAUDENS

"YOU CAN do anything you please; it's the way you do it that makes the difference." That significant saying of Augustus St. Gaudens was well proven in all his work for he was never satisfied until he had made it as nearly perfect as possible. It was this thought that led him from boyhood up, to be so intensely active, that while apprenticed to a cameo cutter, and working very hard all day at a monotonous, wearisome task, he yet devoted his evenings to the study of drawing in the free classes at the Cooper Institute. Appreciating the opportunity, he took hold with such vigor that he himself said: "I became a terrific worker, toiling every night until eleven o'clock, after the classes were over. Indeed, I became so exhausted with the confining work of cameo cutting by day and drawing by night, that in the morning Mother literally dragged me out of bed, pushed me over to the washstand, where I gave myself a cat's lick somehow or other, drove me to the table, administering breakfast, and tumbled me downstairs out into the street, where I awoke."

Augustus St. Gaudens' father was French and his mother was Irish, and he inherited from them a love of the beautiful and the still more valuable asset of character, yet he was essentially American both in his way of thinking and in his art. He came to this country while he was a baby in 1848. In New York City his father, Bernard St. Gaudens, opened a shop where he continued his trade of making French boots and shoes. He had the wisdom to ask his son, Augustus, what kind of work he preferred to do when at the age of thirteen it was necessary that he should quit going to school. The boy's reply that he should like to do something which would help him to be an artist, added to the advice of Dr. Rea Agnew, who had recognized the talent in the youth's rough sketches upon neighboring walls, led to his apprenticeship to a French cameo cutter named Avet. Under the control of this violent-tempered man Augustus had a hard time of it for a few years. Then in a fit of temper Avet discharged the boy who at once went home and told his father what had occurred. It was evidently to the satisfaction of the man that his son, when a few minutes later his employer came and sought to get him to return, firmly refused, and soon obtained work with another cameo cutter, Jules Brethon, a man of very different disposition. His evenings were now spent at the

National Acadamy of Design instead of at the Cooper Institute.

The stirring days of the Civil War, with the recruiting of troops and the excitement attending the election of Abraham Lincoln, with a sight of that hero himself, made indelible impressions of patriotism upon the lad which later doubtless helped to make strong his work on the statues of our national heroes.

In 1867 his father offered Augustus a steerage passage to Europe and the young man arrived in Paris with $100, saved from his wages. There, earning his living by cameo cutting in the afternoons, he devoted his mornings and evenings to study at the Petite École, and later under Jouffroy at the École des Beaux Arts. He endured these long hours of work by frequent athletic exercises, swimming and walking excursions.

When in 1870 war was declared between France and Prussia the inclination of St. Gaudens to enlist on the side of France was very strong, but a pleading letter from his mother decided him to give up the idea and he went to Rome, where for about four years he struggled with poverty while pushing his studies. He produced his first statue—that of Hiawatha "pondering, musing on the welfare of his people"—, but it was only through the orders given him by an American, Mr. Montgomery Gibbs, that he

was able to secure enough money to have the figure cast. Going back to New York for a brief period he did not at first find it easy to get commissions for work that were really worth while, but an order for a bust of Senator Evarts encouraged him.

After another visit to Rome, he returned again to the United States in 1875 and for a time had to take up teaching to supply himself with the means for living. A fortunate thing happened to him when he came in touch with the artist, John La Farge, for he said himself that the intimacy between them spurred him to higher endeavor. Good luck followed, for Governor Morgan secured for him the order for the statue of Admiral Farragut. It certainly was a triumph, for five of the committee voted for giving the commission to a sculptor of high distinction, and he won by only one vote. Mr. La Farge also commissioned him to execute some bas-reliefs for St. Thomas Church, New York. In 1887 St. Gaudens helped to found the Society of American Artists which was important as marking a vital change in American painting and sculpture, which hitherto had been very conventional in style.

Soon after he married, and he and his wife started again for Paris, where for three years he worked on the bas-reliefs, which when sent to

Mr. La Farge were said by him to be "a living work of art." The Farragut statue was also completed, and then St. Gaudens returned to New York and took up his work definitely as an American sculptor. In his studio there he gathered about him a circle of men who became admirers and life-long friends, such as Stanford White, Charles F. McKim, H. H. Richardson, John La Farge, and others. While the result of his foreign studies was evident in his work, he used it skilfully in establishing a distinctive American style and was the first artist to lead sculpture away from an imitation of the classic Greek forms. His Farragut statute is thus well described by Royal Cortissoz: "He has produced a figure instinct at every point with the energy and strength of a man fronting perils in the open air amid great winds and under a vast sky."

His medallion work was most charming, very delicate and beautiful. The Robert Louis Stevenson medallion in St. Giles' Church, Edinburgh, is one of the finest examples. "He delighted in giving a clear, even forcible impression of the personality before him. It is portraiture for the sake of truth and beauty, not for the sake of technique."

Fourteen years of his life were given largely to the modeling of the monument of Robert

Gould Shaw in Boston. There were times when he dropped work on it for the fulfillment of many other commissions; at other times he worked arduously upon a high scaffolding in the hot summers, seriously injuring his health. This monument is generally considered to be one of his greatest works in imaginative power, skill of composition and perfection of technical detail. It was characteristic of St. Gaudens to spare himself no pains if thereby he might improve his work. Shaw was a young Bostonian, "killed in action while leading his regiment—the 54th Massachusetts—of colored men led by white officers. Across the relief march the troops to the rhythm of the drum beat; there is a martial animation, but in the faces is the tense look of anticipation of the impending battle. Occupying the center of the panel, Shaw rides beside his men, an expression of sadness on his face. Above, floats a figure to which the artist gave no name, but which his interpreters have called Fame and Death."

St. Gauden's statue of Abraham Lincoln in Chicago is universally beloved for it reveals the very soul of the great emancipator as he lives in the hearts of millions of people. "Simplicity is its predominating characteristic." "The tall, ungainly figure embodies in its attitude and in every hanging fold of the unfitted garments, the

spirit of infinite tenderness, melancholy and strength."

The Logan and the Sherman monuments are both fine interpretations of the men they represent. General Logan rides with "the air of a conqueror. The body seems a living thing." The Sherman statue "is infused with the spirit of invincible determination."

Other notable works of this great sculptor are his "Puritan," which illustrates his aptitude in the presentation of a bygone personality; the Adams memorial in the Rock Creek Cemetery near Washington, D. C.; St. Gaudens once spoke of this figure as symbolic of the mystery of the Hereafter; it is beyond pain and beyond joy. Royal Cortissoz says that it is "the finest thing of its kind ever produced by an American sculptor, and an achievement which modern Europe has not surpassed." And then we should not overlook his statue of Phillips Brooks in front of Trinity Church, Boston, which so well depicts the noble spirit of the man.

St. Gaudens was appointed one of the committee upon laying out the World's Fair grounds at Chicago and personally designed the figure of Columbus in front of the Administration Building. He was always interested in furthering the cause of American art. He helped largely in founding the American Academy of

Fine Arts in Rome, and in developing the artistic beauty of the National Capitol at Washington.

Honors began to press in upon him. Harvard, Yale and Princeton gave him degrees. At Paris in 1900 he was awarded the medal of honor and at Buffalo a special medal was given him by his fellow artists who "sought lovingly to exalt him as the master of them all." In 1904 he was elected honorary foreign academician of the Royal Academy of London and the French government made him an officer of the Legion of Honor, and a corresponding member of the Society of Fine Arts. But ever the United States grew more dear to him. "No native-born sculptor was ever more American than he, and none has ever succeeded in bodying forth, in stone or bronze, such magnificent visions, such sympathetic and powerful presentations of the nobility of American manhood." "Although of foreign birth and for many years resident abroad, he remained as distinctly American in his art as if he had come from a long line of native ancestors."

A TRUE PATRIOT

CARL SCHURZ

ONE whose migration to America must be put on the credit side of the immigration account." This was the comment of a leading weekly of the United States upon the life of Carl Schurz, who, throughout his residence in this country, gave in all things full proof of his patriotism.

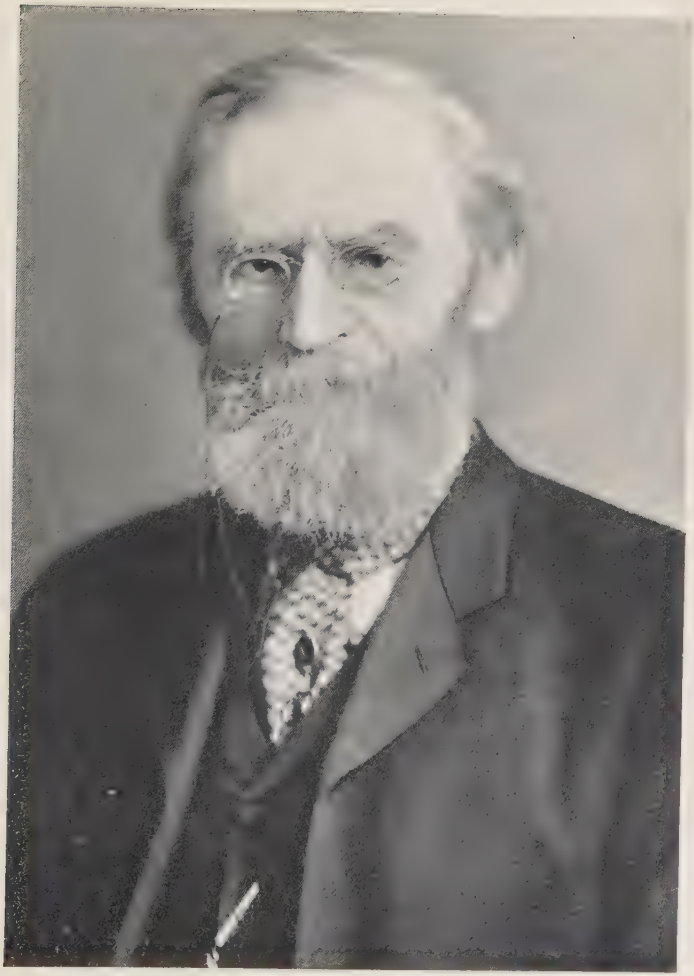
Carl was born in 1829, in Liblar, which is about three hours' ride from Cologne, and was the son of a peasant schoolmaster. At that time France ruled this part of Germany. But after awhile it passed under the control of the King of Prussia. This was not pleasing to the people, and at the gymnasium, where he was in school, the desire for more freedom was much talked about, Carl himself giving expression to it in one of his compositions. For this the professor rebuked him, and told him that it must not occur again. However he consoled himself with the thought that he was still free to think and talk.

In 1846, upon entering the University of Bonn, he was invited to join the Franconia Society, which was composed of students from all parts

of Germany. This was a great advantage, as well as an honor. At the home of Prof. Gottfried Kinkel he met many men and women who earnestly discussed the need of greater liberty for the people. Soon a revolution broke out and Carl left the university to fight for the rights of his countrymen. He was made a lieutenant in the revolutionary army. But all too soon it was overpowered, and the young man realized that he must escape before surrender was demanded, or he would be shot as a rebel.

He resolved to try to get out of the village through a new sewer which was as yet unused. With his servant and a friend he reached the opening unnoticed and crept inside. As they were crawling through, a heavy rain suddenly filled the sewer so that only their heads were above water. At last, after many difficulties, they reached the outlet only to find a Prussian guard on duty there. This meant that they must go back to town. There they hid in a ditch covered with brush until Carl attracted the attention of a workman, who led them to a small loft where there was just room enough for the three of them. Prussian soldiers, however, came into the shed below them, and for three nights and two days they were forced to remain there without food or drink.

At length, becoming desperate, Carl's friend



CARL SCHURZ

managed to get down from the loft and over to a near-by hut while the soldiers were asleep. He returned with a piece of bread and an apple, and the promise of the man who lived there to bring them food, and also information as to a possible way of escape. With his aid they got away the next night, again crawled through the sewer, which was no longer guarded, and after an hour's tramp found a boat waiting for them on the bank of the Rhine, which took them across to France. Thence Schurz went to Switzerland.

After some months he heard that his friend Kinkel was in a Prussian prison, and felt that it was his duty to try to rescue him. It was a difficult and dangerous undertaking, but it was finally accomplished. The act was so daring that it created a sensation in Europe.

The next two years Schurz spent in Paris and London, where he supported himself by teaching and as correspondent for German newspapers. He then decided to go to America, and with his young bride, the daughter of a merchant of Hamburg, he reached New York in September, 1852. During the next three years he endeavored to learn all that he could about the government and laws of the United States, visiting Washington and hearing the senators and congressmen speak on the affairs of the day. He studied law, and also the conditions and needs of this country.

He made public speeches to help accomplish the changes he saw were necessary. As soon as he had lived here long enough he became an American citizen. He was strongly opposed to slavery, and in 1858 spoke in English on this subject so effectively that his speech was published all over the United States.

Schurz soon became noted as an orator, and did much to bring the Republican party into power and to elect Abraham Lincoln president of this country. He was appointed United States minister to Spain, but he did not remain there long, for the Civil War broke out and he felt he could serve his adopted country better on this side of the water.

Immediately upon his return he entered the army and was made brigadier-general. Later he was promoted to the rank of major-general, and took part in several dangerous engagements. During and after the war he helped the cause of freedom by frequent public speeches. As editor of influential newspapers and as an orator, Mr. Schurz aided in the election of General Grant to the presidency. In 1869 he was himself elected to the United States Senate, being the first man born in Germany to attain that honor. He held this office for six years.

He rendered great service by exposing public abuses and simultaneously imbuing the people

with national ideals of a high order; he put a corrupt civil service upon a more elevated plane of operation. He aided in destroying the boss-ism of the political machine, and always strove to inspire others with his own principle of country above party, bettering Stephen Decatur's axiom by his own: "My country, right or wrong. If right, to be kept right; if wrong, to be put right."

As Secretary of the Interior under President Hayes, he did much to better the condition of the Indians and to bring them in closer touch with civilization. It has been well said that "no one could question the unselfishness of his devotion to his adopted country, the non-partisan temper of his critical judgments, and the nobility of his political ideals." Surely it would be difficult to win higher praise.

Carl Schurz was distinguished as a linguist, amazing his brother senators on one occasion by translating at sight lengthy passages on a technical subject, which he had never seen before, into four different languages. "He was the only statesman of his generation who could make an eloquent speech either in English or German without revealing which was his native tongue."

Toward the end of his life, at the request of his children, Mr. Schurz wrote the story of his life experiences. These are entitled "Reminis-

cences," and fill three large volumes, containing many interesting incidents, for which there is no space here. He died in 1906.

The tribute given him by W. D. Howells we quote in part: "Schurz's character had the simplicity which mates with true greatness. His was a tender, affectionate nature, though never a weak one. You knew where to find him always, and that was the right place. This fighter for freedom in two worlds, this just advocate, this honest politician, this conscientious journalist, this wise statesman lived with all the honor that a man could wish."

THE FRIEND OF THE IMMIGRANT

EDWARD A STEINER

THROUGH hunger, homelessness and loneliness; the drudgery of work; the pangs of poverty and even the fire of affliction, has Edward A. Steiner been led in his experiences from "alien to citizen" and from his birthplace in Austria to the position he now holds of professor of "Applied Christianity" in Grinnell College, Iowa. The words used in this title explain exactly his mission in this country, for he has been "pleading with voice and pen and soul, for an understanding of and a brotherly attitude toward the immigrant." He has asserted that it ought to make no difference because they are Hungarians, Italians or Jews, "for after all, they are human, and this immigration problem is a human problem with far-reaching consequences." He has tried to "humanize the process of admission to this country; expose and abolish the worst abuses of the steerage and to interpret the quality and character of the new immigrant to those Americans who believed that these newer people were less than human."

The story of his experiences is an interesting one. In this short sketch we can only tell some of its incidents. His boyish longing to get to America was fulfilled by the threat of one of his countrymen to reveal to the Hungarian government the awful fact that he had been guilty of sympathizing with and aiding the oppressed Slovaks. So Edward's mother was informed that for a certain sum of money his offense would be kept a secret until the youth was safe across the border on his way to America. Needless to say, his poor mother felt that she must part from him and was eager to get him out of danger.

To him as to others, the entrance to this land was a rapture, for he felt he had come to the "magic, holy country." He says because he has felt this rapture, he has gone back and forth, and would like to go on unwearyingly to guide men into this rapture and to interpret to them its meaning. This feeling he appears to have kept despite all the hard experiences which he met in this land. The next morning after he reached New York he awoke without money and without friends. Naturally he had hoped that his knowledge of languages would be useful to him in obtaining employment. But he soon found that he must take any kind of work that he could get. All that day he walked the streets looking for work and all day he had nothing to eat. He

knew he was "in a free country but the only thing which was free was ice water." Fortunately at evening time he remembered that his mother had given him the address of a distant relative who lived in the city. It was eighty blocks away, and he had to walk the whole distance, but when he got there, more dead than alive, he was received with cordiality and revived by delicious food.

In a few days he obtained work as a presser of coats, which was an exhausting and trying task under the iron hand of an Irish forelady. He earned for his week's work the sum of $3.50 which made him "supremely happy, for he knew he had really earned every cent of it." He was eager to learn the English language, so he began attending the evening classes at the Cooper Union, but the first result was unfortunate, for he spoke to the Irish forelady English words of which he had not fully learned the meaning, but they had the effect of making that individual so mad that he was discharged. Again he had the disheartening work of hunting a job, and being hungry and homeless, for he had exhausted the patience of his relatives. A Russian presser offered him a bed and a home and he secured work as a cutter in a clothing shop. This time he received $7 as wages. After five weeks of satisfaction, he was notified that there was no more

work for him, for it was a slack time and everybody was laid off.

He then determined to leave New York and started across the ferry to Jersey City. His first experience was on a farm, doing chores and helping generally. To his unaccustomed hands the work proved very hard, but Maria, the housekeeper, gave him books from her employer's table to read. Shakespeare, Emerson and J. G. Holland were a source of great enjoyment to this university-trained youth. Finally after various distressing experiences, of which one was having to take the place of the cook which he found particularly humiliating because of his ignorance as to how to do things, he was discharged.

He next entered a Christian home, into which he was taken when the conductor of the train put him off because he had no money to ride further. Here he was hired to help in the tobacco field until the autumn, when he went to Pittsburgh and obtained work in a steel mill. It was a bitter winter for Steiner, not so much because of the hard labor and small wage, but because of his utter isolation, and he felt that no one had faith in him or his kind, for immigrants were regarded simply as "cattle." He had to live in a boarding house where he was one of twenty who shared two living rooms in which there was not the simplest appliance for the common decencies.

Life was merely, as one expressed it, "work, eat, drink, getta drunk, go to sleep." Just because he was a foreigner he found it impossible to get a bath anywhere, for the boarding house did not provide one and he found it impossible to purchase one in any decent place. Now through Mr. Steiner's efforts the appeal for decency has been heeded, and his "contemporaries of the Pittsburgh period are living under the best American ideals. The year book of the Slavonic National Society marks the distance which these pioneers have traveled in less than a quarter of a century."

In the spring, floods closed the steel mills, pestilence developed and his boarding house was quarantined on account of contagious diseases, of which small pox was the worst. When at last he was permitted to leave, he walked to Connellsville, among a maze of railroad tracks. It was very late at night when he reached there and in attempting to get out of the way of a switching train, he slid down an embankment and literally fell into a house where an old woman was washing clothes. With hands dripping with soapsuds she lifted him to his feet, and then without waiting to hear his story, she brought him a good hot meal of sauerkraut, his first meal that day. She made him lie down on her bed and when he awoke he found her "old man" was lying

beside him without being undressed or washed, but black and ugly just as he had come from his work of tending the fires of the Coke and Steel company.

The son-in-law engaged Steiner to be his helper in the coal mine at a dollar a day. Every evening his boss took him to the saloon where he drank at Steiner's expense. In the third week of his being there, a strike occurred, resulting in his being beaten and left insensible. When he came to consciousness he found himself in a prison cell in a vermin-infested building, crowded by strikers and strike breakers who did all they could to make his life miserable. For more than six weeks he was left in the jail without knowing why. His letters to the Austro-Hungarian Consul were unanswered. At last he was taken before the judge charged with carrying concealed weapons, and sentenced to three months in jail with a fine of $100. The revolver he had with him was one given him by a fellow boarder in Pittsburgh, who died. For more than six months, for he had to work out his fine, no one came to see, to comfort or to explain. He was left alone in the company of thieves, tramps and vermin.

Mr. Steiner was later led by this experience to visit prisons and penitentiaries where wardens told him of aliens who were suffering imprison-

ment because they had broken laws of which they had never heard. For example, six Greeks were imprisoned in a Kansas town, because they had bought beer in Nebraska and had drunk its contents on a Sunday in their camp by the railroad. Steiner's plea for them was effective in leading the judge to free them although he required them to pay a fine of $100 each. In many similar instances has Mr. Steiner been influential in getting innocent immigrants set free.

Chicago was the next point toward which "the immigrant's friend" made his way, and his experience there was not encouraging. An offer of work from a man who took him into a saloon led to his being drugged and robbed and then taken to the police station. Fortunately his search for work led him into the Bohemian district where he found work and a lodging in a place that was scrupulously clean, and to his joy the home had music and good literature in it. Association with people of some education was most grateful to a man like Mr. Steiner. At a free thinkers' club he gave a series of talks on Bakunin and Tolstoy.

A year of great industrial depression led him to leave Chicago and go to the harvest fields of Minnesota. There he found real enjoyment in the outdoor life and under an employer who was a typical American with a good education. He lived in the home, where he had a clean, orderly

room, a hearty supper, a romp with the children, a family prayer and a hymn sung before retiring for the night. "Out in the glory of God's fields he forgot his wrongs and his sufferings, and something of faith and hope" came back to him. He was able to get books from a public library and he reveled in Carlyle and Ruskin. When the frost came he was homeless once more, with only a happy memory of delightful experiences. Then again he began life as a miner in Illinois, joining a party of Slovaks with whom he had crossed the ocean. Those with whom he associated were a superior class of men, all of them teachable. Mr. Steiner started English classes among them, wrote their letters and helped them with their shopping.

Going to a neighboring town to see an American girl who had once visited in his native town, he obtained work in the factory of her father, finally gaining sufficient courage to call at her home and make himself known. Her parents had not forgotten the poor relatives who lived across the ocean and whom gradually they had brought to America. They saw very quickly that Edward Steiner ought not to return to the factory and suggested that he study law, but he had reasons for not wishing to do so. Then they suggested that he enter a Hebrew college and prepare for becoming a rabbi or take a position

as instructor. So at last he started east in charge of a load of cattle, in the sale of which his new friends were interested and which secured him a free trip. On the train an Irish lad, who was one of a group of professional cattle keepers who resented the presence of an amateur because he had taken the place of one of themselves, stole a twenty-dollar gold piece from Mr. Steiner who threatened to have him arrested when they reached their destination. Consequently this lad was anxious to prevent Steiner from doing that, and so he tripped him up as he was running along the top of the train to reach his own cars of cattle, and he fell to the ground, while the train rushed on. Having twisted his leg he could not rise at first, and he could not make anybody hear his cries, but he was able to limp after a while to a little town where a Jewish woman took him into her home and nursed him back to health. She procured him a clerical position, and once again he was in a life where he was in touch with persons of culture with whom he formed invaluable friendships.

A number of public school teachers organized a modern language and literature class which he taught. A group of women teachers read philosophy with him, and then they did for him what he most needed,—helped to develop his religious life. The minister of a church became his friend

and the Christian atmosphere of his home captivated Steiner. Together they organized a public reading room, at the opening of which he made his first address in English. Here also he began his work for the immigrant.

In this town came the turning point of his life when through the influences around him he was led to become a Christian—a converted Jew. Then he decided to enter a Presbyterian Theological Seminary but found himself out of sympathy with its teachings. Here however he found a pastor of a church who asked him to assist him in his work. He succeeded in winning people from the places of sin and wretchedness and bringing them into the church, but the church members objected strenuously to being associated with such people and the sainted minister felt compelled to stop the work. This caused Mr. Steiner to determine to sever his connection with the seminary and to abandon his relations with the ministry. But that very morning he met a Jew of wealth and culture and full of the Christ spirit. He suggested to Mr. Steiner to go to the Seminary at Oberlin, Ohio, and offered him all the financial help he needed.

Going there, he found just the atmosphere that was helpful to him. The dean of the Theological Seminary gave him a hearty welcome and he took his place as a student. More and more he

found himself in harmony with his surroundings and in the place for which he was fitted. It was during this period that he became an American citizen—a never-to-be-forgotten day to him. Another great day for him was that on which he graduated from the seminary. He left Oberlin with profound gratitude and joy, for after the extremely trying experiences he had gone through since he landed in this country, he was now no longer a stranger, but "fellow citizen with the saints."

To his first parish he brought his bride, but both of them craved a more difficult field. So after two years they accepted a call, although it meant a smaller salary and plenty of hard work. Here his parishioners were wage earners of several races, and he had the joy of seeing a vital unity created between people of different nationalities. An amusing incident, which he thinks somewhat typical of his work there, occurred at the baptism of a baby of Irish-Jewish parentage. Relatives on both sides claimed the privilege of naming the child, and decided on Patrick and Moses respectively. A conflict appeared to be imminent, but Mr. Steiner suggested naming the child with one syllable from each name, which suited both factions and the child was baptised with the name Patmos.

Two other churches were served by Mr.

Steiner and then he was engaged by the editors of *The Outlook* to go to Europe and write the life of Tolstoy, which he gladly consented to do. While there he received a call to the professorship of Grinnell College which he still fills. He is in great demand as lecturer and preacher and is constantly called upon to help in solving the problems of wage workers. He has written several books on topics relating to the immigrant, and at the close of the one entitled "From Alien to Citizen," which is really his autobiography, he says that when the end comes, he shall say with his last breath,

"Thank God for the Christ,
Thank God for America,
Thank God for Humanity."

A MANY-SIDED GENIUS

CHARLES PROTEUS STEINMETZ

A GREAT mind in a small body—he stands only four feet high and carries an enormous head between high shoulders—one of the world's greatest mathematicians, a mental dynamo, is a fair description of Charles Proteus Steinmetz, professor of electrical engineering in Union College, Schenectady, N. Y., and the highly valued consulting engineer of the General Electric Company of the same city. Distinguished as he now is, he came from a poor family in Breslau, Germany, where he was born April 9, 1865. His father, a lithographer by trade, but later a railroad employee, was determined that his son should be well-educated and did everything in his power to that end. In order to test fully his tastes and capabilities Charles took preparatory courses in medicine, political economy, mechanical engineering, and other studies in the University of Breslau. Finally he gave himself to full and comprehensive work in mathematics, higher chemistry, and electricity.

How he used his acquired knowledge for the

benefit of a friend is an interesting story. As a member of a socialist club he had himself been arrested and, later, been released; but a medical student was convicted. Steinmetz felt sure that the government would grant his friend privileges, such as writing materials so that he might finish his doctor's thesis, blotting paper and toothpaste. He was also permitted to have books regularly, the government agent rigorously inspecting each one before they were taken by Steinmetz to his friend's cell. After the trial at which this medical student was acquitted, the prosecuting agent was dismayed to discover that he had passed upon books whose blank pages were covered with invisible writing that the prisoner had been able to develop with a solution made from toothpaste and blotting paper. From suggestions thus made to him, he had been able to work out his defense. Steinmetz who had made the invisible ink and had planned the whole affair, found the country an unsafe place to stay in and escaped to Switzerland in 1888. A year later he emigrated to the United States.

Here he worked for a time at twelve dollars a week with Eickmeyer and Company at Yonkers, N. Y. While there his loneliness as a stranger in a strange land was relieved one evening by an acquaintance inviting him to his home for supper. In grateful recognition of this act of friendliness

he adopted a son of the family and it is believed that he has assisted in the education of others.

In 1894 after the General Electric Company had consolidated the Eickemeyer business with its own, the headquarters were transferred to Schenectady and soon after Steinmetz became its Consulting Engineer at a salary which has stood for some time at $100,000 a year. In 1902 he also accepted the professorship of electrical engineering in Union College. There he has made his teaching very valuable and enjoyable to the students by the clearness of his exposition so that even undergraduates can grasp and carry away the solution of intricate problems. Consequently the college is now considered one of the best for the study of electrical engineering.

Dr. Steinmetz is a scientist with a passion for work, uniting the imagination of an artist with a force and intensity that compels him to make a thorough search into all that is involved in any subject that presents itself to him for observation. Being gifted with a ready command of the English language and the ability to make difficult things easy to understand, he is noted as a lecturer and a writer for magazines. At meetings of the American Institute of Electrical Engineers, of which he was for some years president, he is usually called upon to close the discussions because of his power of lucid description and ex-

planation, given in forceful and clean-cut phrases.

What has this remarkable man done to benefit practically the people of America?

For many years electrical engineers have been puzzled over the control of the wonderful forces they had discovered in the rivers and waterfalls, which continually broke loose in unaccountable ways, surging along the wires, breaking insulators to pieces and destroying generators and power stations. After a profound study of the problem Dr. Steinmetz brought to these engineers a method by which they could restrain these forces so that to-day it is possible to transmit electrical power at high pressure without damage. This is technically called high voltage for power transmission, and it is not unusual now for 200,000 volts to be safely used.

He has shown us the possibility of abandoning the use of generating plants of small capacity and the furnishing of electrical power by substation service from the big trunk supply lines. Much has already been done in this direction in consequence of the work accomplished by Steinmetz.

He has greatly benefitted all industry by his invention of various motors, such as the induction and polyphase motors. These have made cheap carlighting and quick elevator service possible and perfected street lighting. The Steinmetz

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CHARLES PROTEUS STEINMETZ

Law of Magnetism is a method by which engineers can figure how much magnetizing current they should use to magnetize a given piece of iron to be used in an electrical generator or motor, and how hot the iron will become when used in certain conditions. This is considered one of the most valuable things he has done.

Dr. Steinmetz is a man of remarkable humility despite his wonderful scientific ability. He has invented many things in addition to the motors mentioned above, particularly a magnetite arc lamp and a mercury arc rectifier. But it is a notable characteristic of his that he is continually giving suggestions to others which assist them in perfecting their own inventions, thus bringing out the abilities of others in a helpful way. He is so highly regarded, not only by members of his own profession, but also by his townsmen that he has held for some years the office of President of the Board of Education of Schenectady and since 1916 he has been President of the Common Council of that city.

He is much interested in the National Association of Corporation Schools, of which he is president. The object of this organization is to correlate the educational opportunities of all who are engaged in industrial work, so that illiteracy and inefficiency may be lessened and production speeded up, and thereby compensation and the

standard of living be raised. He is a Socialist of the kind indicated by the following words of his;

"We must let the big corporations alone . . . no use in breaking them up into smaller units which cannot be controlled. As soon as the big ones combine under stricter government regulations, the sooner we shall have better working conditions."

The house, laboratory and greenhouse of Dr. Steinmetz are among the show places of Schenectady.

The benefits conferred by him upon America may well cause Germany to regret that she compelled him to leave his native land.

A FAMOUS MERCHANT

ALEXANDER TURNEY STEWART

ON a British packet ship in 1818 there came into the port of New York an Irish boy of sixteen whose name is known the world over as that of a great merchant, great not only for the size of his business but also for the sterling principles of commercial integrity which he established and upon which he insisted.

Born in Belfast, Ireland, October 12, 1802, of Scotch-Irish parentage, Alexander Turney Stewart, in consequence of his father's death when he was still a little child, was brought up by his grandfather who purposed that he should become a minister and therefore educated him well, finally sending him to college. But the grandfather died and the boy gave up all thought of carrying out his wish, and soon after crossed the Atlantic Ocean, landing at New London, Conn., whence he went to New York City to his mother who having married again, had some years previously come to America.

Alexander obtained a position as teacher in a school kept by a Mr. Chambers, whose name was

given to Chambers St., New York. Then he changed to one of more note where he taught boys who in later years had business relations with him. His salary was $300 a year, which at that time was considered a good one. With the belief that he could better himself he opened a small dry goods store. Not long after he sailed for Ireland to claim $3000 left him by his grandfather. Acting upon advice given him, he invested this amount in Irish linens and laces and returned to New York, where he rented a store at 283 Broadway, sleeping in a rear room. Here he began what eventually developed into a large and lucrative business. In the New York *Daily Advertiser* he put the following advertisement on September 2, 1825;

"A. T. Stewart offers a general assortment of Fresh Dry Goods at 283 Broadway."

He developed a talent for business, showing his stock to advantage and selling at a good profit. He replenished his stock, in those early days, with goods picked up at auctions which again yielded a fair profit at retail. It was in the beginning of his business that he adopted the principles which were the foundation of his success. He foresaw the rapid growth of this country and the extensive use of credit and the probability of panics and business failures. He therefore always bought for cash and gave credit

to no one. This course frequently enabled him to buy out his competitors when they failed and had to sell at a sacrifice. It was noticeable how many men who had once been in active business for themselves were to be found in his store, where they were glad to accept positions.

Alexander Stewart's good sense, sound mercantile judgment, his native shrewdness, and constant industry were strong factors in his immense business success. The four principles from which he never swerved are worth noting; they have been adopted by leading commercial houses.

I. Honesty between buyer and seller. He never asked and never permitted a clerk to misrepresent merchandise. He rarely gave a seller a second opportunity to misrepresent goods to him. His salesmen acquired a reputation for trustworthiness which by degrees spread throughout the country.

II. Selling at one price to every one. This was a new rule at that time. Country people came to understand that they could depend on getting the value of their money at this store as fully as could people of wealth.

III. Requiring cash on delivery. This rule applied alike to every one.

IV. Conducting business as business, not as sentiment. His aim was an honorable profit and

he did not allow any other consideration to interfere with that aim. Having fixed the price of the goods he had to sell at a fair figure, no amount of talking would induce him to make any change.

A. T. Stewart was a pioneer in commercial methods that had never been customary or apparently even been thought of by merchants up to his time. Now having seen the immense success that has resulted from their adoption, they are no longer strange or unusual. He believed emphatically in treating his customers with strict justice and honesty.

In 1848 he had acquired so much money that he erected a large building frequently spoken of as of marble but the framework was really iron, painted white. It was located on Broadway between Chambers and Reade streets. Later, this became the wholesale house, and he built another for the retail part of his business, between Ninth and Tenth streets, Broadway and Fourth avenues. In 1862 when it was built, it was the largest retail store in the world. It cost nearly $2,750,000 and about 2000 persons were employed in it. Six elevators ran from top to bottom, of which three were for customers and three for hoisting goods. Everything in the store was systematized and well administered. Thirty ushers answered inquiries. The windows on all four sides of the building were so numerous that

it might be said to be of glass. Of course, to people familiar with the immense and costly mercantile structures of to-day, with their luxurious furnishings and equipment, such a store does not seem remarkable, but in those days it was considered one of the wonders of the commercial world.

For the three years prior to his death in 1876 the aggregate sales in the two buildings amounted to about $203,000,000. His annual income during the war of 1863-5 averaged nearly $2,000,000. He established branch houses in different parts of the world and was owner of numerous mills and factories.

It is to be regretted that A. T. Stewart's great talent for detail and his absorption in his business prevented his making wise plans for the disposition of his great wealth after his death, although he left a letter addressed to his wife requesting her to provide for various public charities if he should fail to complete his purpose concerning them. Unfortunately his wishes were not carried out as he desired.

During his lifetime his charitable gifts were mainly as follows; in 1846 at the time of the famine in Ireland he sent a shipload of provisions to his native land and gave a free passage to as many emigrants as the vessel could carry on its return voyage, taking precautions to assure that they

should all be of good character and able to read and write.

After the Franco-German war, he sent to France a ship loaded with flour, and in 1871 he gave $50,000 for the relief of the sufferers from the Chicago fire.

Prince Bismarck sent Mr. Stewart his photograph, asking for his in return, but as the latter had a very decided objection to having any portrait of himself taken, he sent to the prince instead, 50,000 francs for the relief of the sufferers from the floods in Silesia.

He showed his loyalty to the United States by being one of the largest contributors to the fund of $100,000 presented by the men of New York to General U. S. Grant as an acknowledgment of his great services during the Civil War.

At the time of his death he left uncompleted a home for working girls in New York City which cost one million dollars. He was also building at Hempstead Plains, N. Y., the town of Garden City to give his employees homes at moderate cost.

In 1869 President Grant appointed Mr. Stewart Secretary of the United States Treasury, but it was not possible for him to accept it because of an old law excluding from that office any one engaged in the importation of merchandise. The President recommended to the Senate the repeal

of the law so that Mr. Stewart might be eligible, but although the latter offered to transfer his immense business to trustees and devote the entire profits to charity during his term of office, the law was left unchanged as it was not thought that his plan would remove the difficulty.

America owes much to the Irish lad who crossed the ocean and by his management of a great business introduced and made popular high principles of commercial integrity and fair dealing.

THE SAVIOR OF BABIES

NATHAN STRAUS

A BIG brother to everybody he could help was this "Savior of Babies." Nathan Straus was his name and he was born in Otterberg, Bavaria, in 1848. The country in which the Bavarians lived was beautiful, yet the people were not happy because they had unjust laws and the oppression of their rulers increased until the inhabitants could not bear it any longer and rebelled. Then Nathan's father decided that he must take his family to America where they could live under happier conditions. They came to the United States when Nathan was six years old and settled at Talbotton, Georgia. The Civil War interfered with the father's business, after a while, and therefore he moved to New York City where he and his eldest son, Isadore, started a business in pottery and glassware. After going to a business college Nathan joined his father's firm, which prospered so well in a few years that the debts of the family were all paid and they were comfortably established.

Nathan married, had a home of his own and

gained wealth rapidly but he did not become selfish or unmindful of the troubles of others. The children of the slums particularly excited his pity, and he resolved to do what he could to help them. The babies especially were ailing and sickly. Mr. Straus was convinced that the reason why so many of them died—one hundred out of every thousand each year—was that the milk that they drank was not good enough for them. It was about this time that scientists were at work discovering ways to make milk pure and safe, for nothing absorbs so quickly harmful odors and germs. A Frenchman named Pasteur was the man who finally discovered a method of rendering the milk harmless by heating it to a certain point and keeping it at that point for twenty minutes.

Nathan Straus heard of this man and his discovery, and he went to Europe on purpose to learn more about it. A congress of men skilled in such things was held at Brussels in Belgium and Mr. Straus attended it. Although not a scholar along scientific lines himself, he had learned enough to believe in Pasteur's method, and so when the opportunity came for him to speak, he made an earnest plea for the sick babies who would be helped by it. His speech was effectual, for his faith was contagious and the vote was favorable to Pasteur's plan. They agreed

that milk when so treated was harmless and could not impart disease.

As soon as he reached New York he started to supply the pure milk for the babies. He set up depots in the public parks where the mothers could get it for half price. The Health Department also furnished it, and it was supplied to doctors who practiced in the wretched districts of the city, where the poorest families lived. The effect of his good work was soon noticeable. Babies got strong and well. Mothers were speaking the name of Nathan Straus with affectionate appreciation of what he had done, and they gave him the title of "Savior of Babies." After a while the good results were evident in a decreased death rate.

Chicago, Philadelphia and other cities began to notice what had been accomplished in New York, and Mr. Straus was ready to help them with money and advice. He also endeavored to help the sick and poor babies in Belgium, Germany and Great Britain, and there also he was known as the "Savior of Babies." And yet there were people so selfish and critical that they found fault with Mr. Straus for the way in which he did his good work, but he refused to change his methods, for he believed it not wise to put the distribution of milk under institutional supervision nor to pay big salaries to individuals to do the work. He

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NATHAN STRAUS

enjoyed giving his own time and effort freely to this work of providing and distributing pure milk.

His next brotherly act was the establishing of lodging houses in various places in the city where homeless persons could find shelter in cold weather. He also set up depots for the supply of coal at cost for the poor people.

In 1909 a great earthquake in Messina, in Italy, made many people destitute and homeless and Mr. Straus lost no time in rushing supplies and clothing on board ships for their relief.

A Congress for the protection of infants was arranged by different nations to be held at Berlin, and President Taft appointed Mr. Straus as the representative of his adopted country, the United States. He was made a member of the New York Forest Preserve Board for he loved the beautiful forests and was instrumental in keeping them from destruction. He was also appointed as a park commissioner in New York for he believed in having parks for the pleasure they gave people.

Mr. Straus finally decided to give all his time for the good of others, so he gave up his business. He did not need to earn more money; he he had already given away some two million dollars, now he desired to help in other ways. Going on a visit to Palestine he was distressed with

the conditions he found in Jerusalem and resolved to make it a liveable place, for as a Jew he was naturally interested in the Holy Land. First, he saw they needed pure water so he sought the help of men in America in establishing a water system there. He paid men to sweep three times a day the street leading to the Wailing Wall where the people go to pray and which was in very bad and dirty condition. Many of the natives suffer from blindness, so he sent for an eye specialist from Europe to give treatment to those who had the disease. Then because he found the people very ignorant, he established schools for the education of the children, and bought a house which he fitted up for a household school where girls should be trained in domestic science, how to keep their rooms tidy, and how to wash and iron clothes. He purchased also another building for a nurses' settlement. He supplied a soup kitchen for the poor and he set up a factory to provide work for those needing it, where mother of pearl souvenirs are made. This has proved to be very successful.

In his adopted country, in addition to the many other good and helpful things he has done, he has established a Preventorium for tuberculosis patients at Farmingdale, New York, and also an institute for the cure of hydrophobia by the Pasteur method. Surely this foreign-born citi-

zen is to be credited with many noble deeds for the benefit of the people of the United States, making them happier and more comfortable, and also saving thousands of lives.

A GREAT ORCHESTRAL LEADER

THEODORE THOMAS

A BOY who at the age of five played the violin in public and at seven was able to read and execute any piece of music put before him—such were the beginnings of the great musical leader, Theodore Thomas, who thrilled immense audiences with his concerts. The blind king of Hanover was so impressed with the boy's ability that he offered to provide for his education but as the family was about to emigrate to America the offer was declined.

In 1845, when Theodore Thomas entered the United States, there was no general knowledge of good music, and orchestral music was unknown. When he died at the age of seventy he had spent fifty years in developing the musical taste of its people and he had made "the art of music known and loved by tens of thousands of men and women who had had no technical training."

Theodore was born at Esens, by the North Sea, East Friesland, October 2, 1835. His father was the stadtpfeifer, or town musician.

an office of honor which was held by leading musicians in different places. His mother was the daughter of a physician. Theodore was the only one in a large family who had any musical ability. When they reached New York City, no openings for an instrumentalist were available, except to join a brass band and play for parades or theaters. Theodore had to help his father support the family by playing wherever he could get a chance. This meant much night work for the theaters of that day were open long past midnight, and balls and parties later still. Attendance at school by day was therefore impossible for so young a boy. He endeavored to train himself musically by using every opportunity to play with strict attention to rhythm and the various shades of expression, so that every note rang pure and true. It was his artistic sense that led him thus to prepare himself for his future work.

At the age of fifteen Theodore was free to make his own plans, his father no longer needing his financial assistance. So the boy started on a concert tour of the South, with a horse and his violin, a little box of clothing, and some printed posters announcing the concerts of "Master T. T." He would engage the dining room of his hotel, tack up his posters around town, stand at the door and sell tickets until he thought his

audience had all gathered. Then he would hastily run upstairs to put on his concert clothes, soon appear and begin to play. At the end of a year he returned to New York, and was engaged as the leading violinist in a German theater. Through his engagement with the Italian Opera Company in New York in 1851, he had the opportunity of hearing Jenny Lind, Mario Grisi, Sontag and others, learning the value and beauty of tone-quality. He endeavored to produce on his instrument the soft velvety tones then entirely lacking in the best German violinists.

During succeeding years he had the opportunity of working with Karl Eckert, conductor of the Italian Opera Company, who appointed him leader of the second violins. This taught him to maintain system and order and to manage musicians with tact and justice. Arditi succeeded Eckert, and promoted Thomas to the position of concert meister, the highest in the orchestra, and also gave him the responsibility of engaging all the other members of the orchestra. He was at this time only eighteen years old.

In 1854 he was elected a member of the New York Philharmonic Society and for thirty-six years was associated with it, first as a violinist, later, as its leader. In 1855, William Mason, a highly educated musician, organized a quartette of stringed players to give a series of chamber

concerts in New York City, and invited Thomas to be its first violin. Mason wrote of him that "he was a born conductor and leader." One of the members of this quartette, Frederick Bergner, is reported to have said of Theodore Thomas that "one of the greatest violinists in the world was spoiled to become one of the greatest conductors." Association with men of the refined, scholarly type of those in the Mason Quartette did much to strengthen the high standards at which Thomas aimed.

As a youth he often indulged in wild pranks and escapades, but as he himself said, "I never did anything which I would be ashamed to tell my boys." As he grew older he was especially careful of his thoughts as well as his actions and words. He refused to listen to vulgar talk, read bad books or go to doubtful plays, because he felt "the musician must keep his heart pure, his mind clean, if he wishes to elevate his art." Because he always regretted his loss of a university education, he tried to make up for it by wide and extensive reading and thus became a very well-informed man. Not only did he take every opportunity for severe musical training, but he used all the time possible in the study and science of music. In 1859 it was said of him that he was "America's most accomplished violinist."

One evening when he was only twenty-three

years of age, Thomas received a message saying that Anschutz, who was conducting opera in New York City was ill; would he come and conduct for him? This was something he had never done, and the work for the evening, Halevy's "Jewess," was unfamiliar to him, but at once he said, "I will," and did it with success. This led to his being made conductor permanently. He was always ready for every opportunity.

Recognizing the need of the country to make it musical, was a good orchestra, and plenty of concerts within reach of the people, Thomas in 1862 gave an orchestral concert under his own direction, the first "Thomas Concert." Its program contained two compositions never before played in America, an indication of his life policy of giving the people the best cultured music, often before it was completely recognized in Europe. One of these was Wagner's "Flying Dutchman," music which was then ironically called "the music of the future." After giving several concerts he decided he must have an orchestra of his own, and proceeded to form one, without waiting for financial backing or endowment. This was the beginning of his life work, and also of the Theodore Thomas Orchestra. In 1866 he was elected conductor of the Philharmonic Society of Brooklyn. In 1867 he took a short trip to Europe where he heard

the best orchestras and brought back much information that was valuable to him.

The aim of Theodore Thomas was to raise music from the place simply of entertainment, to the level of the other arts—painting, sculpture, and architecture. In appreciation of his efforts, the business men of New York offered to build for him a hall. It was ready for use in May, 1868, and was opened in Central Park Garden with the first of the Summer Night Concerts which were continued for some years. In the winter months Thomas took his orchestra, which had now been enlarged to sixty men, to various cities. For thirty-six years he toured the whole country, thus becoming a national figure. The result is shown in the words of a musical man of Boston who said, "We thank him for setting palpably before us a higher ideal of orchestral execution. We shall demand better of our own in the future." Thomas himself felt that the support of the public was increasing.

In the seventies, P. T. Barnum invited Thomas to star the country under his management. Thomas humorously speaks thus of the incident: "Can anybody blame me for feeling properly elated that the greatest manager of the greatest menagerie on earth considered me worthy of his imperial guidance and was willing

to place me advantageously before the public, beside the fat woman and the elephant. This was a high tribute, but what had I done to deserve it?" It was indeed an instance of descent from the sublime to the ridiculous.

Musical festivals in which his orchestra cooperated with several hundred voices were established by him and proved very popular. They were given in several large cities. In May, 1875, at the second Cincinnati festival, an incident occurred which Thomas turned to good account, and which is still remembered with interest by many members of the old chorus. The country had been suffering from a long drought and during the day the clouds had been gathering. Just as Thomas gave the signal for the chorus in Mendelssohn's "Elijah," "Thanks be to God," the rain came down in torrents. The coincidence was an inspiration to him, and he gathered all his forces—chorus, orchestra and organ—in one sublime outburst of thanksgiving: "Thanks be to God, He laveth the thirsty land, the waters gather together, they rush along, they are lifting their voices. The stormy billows are high, their fury is mighty, but the Lord is above them, and He is ALMIGHTY!"

Thomas was the first to make a speciality of presenting Wagner music, so that he made his audiences very familiar with it. He was elected

president of the New York Wagner Verein when it was organized. He was always determined that this country should not be behind any European land in any musical way, so it is not surprising to learn that he was able to forward to Wagner ten thousand dollars as the gift of the Verein for his festival performance. In 1873, Rubenstein and Wienawski, world famed leaders in piano and violin, participated in a series of concerts with the Thomas Orchestra. Rubenstein wrote thus to Mr. Steinway: "Little did I dream to find here the greatest and finest orchestra in the whole world. Never in my life have I found an orchestra and conductor so in sympathy with one another, or who followed me as the most gifted accompanist can follow a singer on the piano."

Another trip to Europe gave him much satisfaction. Particularly did he enjoy meeting Liszt. While in London he was offered the conductorship of the Philharmonic Society of that city, but brilliant as the offer was, it was declined for two strong reasons: First, his patriotism toward the land of his adoption and the desire to complete there the work with which he had been long identified; second, his inalterable resolve to pay his heavy load of debts, which he could only accomplish by remaining in this country.

As leader of the New York and Brooklyn

Philharmonic Societies Mr. Thomas's absolute integrity in financial matters was shown in an unusual way. In accepting this engagement, it was arranged that the financial compensation should be $2,500 from each society annually, but in the case of the New York Society this amount was to be paid in the form of shares, of which Thomas considered twenty were a fair equivalent. But he agreed to release the Society from obligation to make good any deficit should the shares fail to yield the expected sum. Nevertheless, when through his leadership, the dividends increased from $18 to $125 a share, frequently even reaching $200, Mr. Thomas refused to accept more than the $2,500 which his contract intended to provide, and he yearly turned back into the treasury of the Society whatever surplus there might be from his own shares. And this he did when he had long carried a heavy load of debt through his noble endeavors to increase the musical knowledge and elevate the musical taste of the people of America.

Part of the work he undertook during this period was the training of large choruses of singers, which culminated in gigantic festivals with some three thousand singers and three hundred players in the orchestra. In no one of the twenty-one programs were there any duplicates. The detail work was therefore very great. An

unusual incident illustrates the character of the man: One night a blizzard prevented the street cars from running and hardly a dozen people were in the audience. The manager asked Thomas if under the circumstances the concert should be given. "Of course?" was the prompt reply, "it will not only be given but I shall try to make an especially good performance, for the people who have braved such a storm as this to hear us, must surely be music lovers who deserve the best we can give them."

Late-comers to a concert were a special aversion to Mr. Thomas. At the first Cincinnati Festival in 1873, he said to the committee, "When I commence the Te Deum you will close the doors and admit no one until the first part is finished." The committee remonstrated, fearing the effect upon the public. Mr. Thomas replied firmly, "It must be done. When you play Offenbach or Yankee Doodle you can keep your doors open. When I play Handel's Te Deum they must be shut. Those who appreciate music will be here on time. It makes little difference to those who come late how much they lose." During his long service as conductor he not only never was absent but he was never tardy at a rehearsal. He demanded that his players should be equally prompt. "Never was a leader more strict, never was there a leader more kind.'

The personnel of the Thomas orchestra was composed of the finest musicians Europe and America could produce. Its membership changed little from year to year. In April, 1883, he started on a tour of thirty cities for seventy-four concerts. For three months he could not take a day for rest, for he was traveling or conducting without an hour's intermission. In 1889, there came to him invitations from a number of cities, asking that Mr. Thomas give a concert in which those who appreciated his work might have the opportunity to show him the "high esteem and sincere admiration felt by the people everywhere for the man and his work." The invitation from New York was signed by fifty men of national fame, such as Theodore Roosevelt, Grover Cleveland, John Pierpont Morgan, Cyrus W. Field, W. D. Howells, etc.

Two years later the Chicago Orchestral Association was organized with fifty-one men as its financial backers. At much personal sacrifice Thomas consented to leave New York and go to Chicago to be its conductor, for he saw his opportunity to do the highest class of musical work. Through a period of twelve years he aimed at the attainment of the highest standard of artistic excellence, giving himself unstintingly to the furtherance of his art in all possible ways. It fi-

nally became necessary to raise money for a permanent building or else abandon the Association, but to the appeal issued for a popular subscription the response was so great that the amount of $750,000 was raised and the subscription list contained no less than eight thousand names, among which were found those of janitors, scrub women, and wage earners of all sorts, besides those of the wealthy people of the city. Never was there a greater tribute to any man.

December 14, 1904, the first concert was held in the Thomas Orchestra Hall and on January 4, 1905, the end of the great leader's life came. Musicians, newspapers, men of prominence, ministers, all spoke in appreciation of him. Although of German birth and retaining many German traits, his whole life was devoted to the service of the American people. Mr. George P. Upton says: "Many a time have I heard him resent slurs upon American institutions and defend the national government and policy against its critics. His love for the United States and his respect and admiration for the broad minded views of its people, as well as their public spirit, were deep, sincere and hearty."

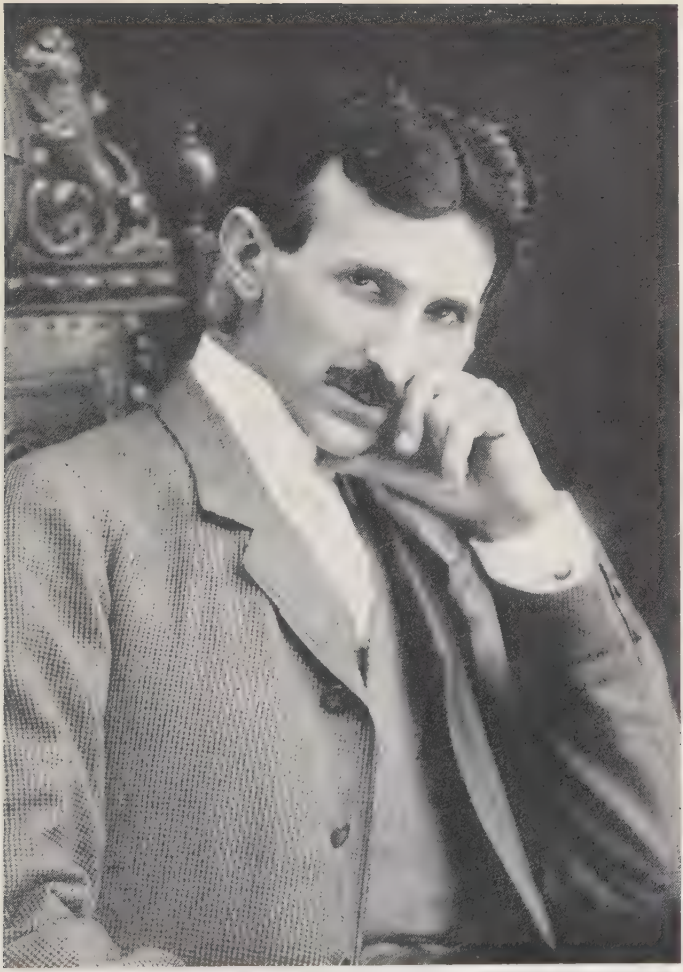
AN ELECTRICAL WIZARD

NIKOLA TESLA

A DREAMER of dreams is Nikola Tesla. Wonderful dreams they are, and many of them have come true, while others are only partially realized and have yet to be shown to be really practicable and feasible. He is a great enthusiast, and can tell thrilling stories of what he is going to accomplish some day. This, and other countries, are indebted to him for some remarkable discoveries connected with electrical power.

Nikola Tesla was born on the border of Austria-Hungary at a place called Smiljan, in Lika, in 1857. His father was a Greek clergyman and orator, and from his mother, whose father and herself were both inventors, he inherited his love of and ability in invention. His parents were desirous that he should follow his father's profession, but the youth himself found this prospect distasteful. After eleven years spent in the public school and higher institutions, he obtained his certificate of maturity and knew that he must decide on a career.

Just at this time he was stricken with cholera,



NIKOLA TESLA

an epidemic of which was then raging in his native land; he was seriously ill for many months, and his recovery was considered doubtful. Finally heroic treatment restored him to health, and his father, in fulfilment of a promise made to his son during his illness, sent him to study engineering at the Joanneum in Gratz, in Styria.

As a boy he had been impressed by the possibilities of will-power and self-control by reading of a person in whom they had been remarkably developed. He therefore trained himself in these characteristics until he found that his will and wish coincided, and to this severe discipline of himself he attributes whatever success he has achieved.

In his classes at the Joanneum he was one day convinced while watching experiments by one of the professors that the commutator device attached to the motor was unnecessary, and might with advantage be omitted. He set himself to work out the problem, but had to wait awhile before he succeeded in proving his contention. In 1880 he went to the University in Prague, Bohemia. The following year he resolved to relieve his parents of the burden of his support, and going to Budapest he secured a position as chief electrician to the telephone company.

In 1882 his duties called him to Strassburg, in Alsace, and here he constructed his first motor.

Although crude it gave him satisfaction, as it was the proof of the correctness of the theory he had held while at the engineering school. It secured rotation affected by alternating currents without a commutator. Unsuccessful in his endeavors to obtain capital for its practical introduction, he resolved to come to the United States. He reached here in the summer of 1884, and somewhat later became a naturalized citizen of our country.

The Edison Machine Works was his first destination, and there he was employed in designing dynamos and motors. In 1888 he signed a contract to develop an arc-light system, and a year and a half later was free to devote himself to the development of his rotating field motor and the rotary transformer.

Perhaps his discovery of the principle of the alternating current has been as important as anything he has done. Without it long-distance transmission of electric power would be impossible. It is a simpler and more economical method of converting electrical into mechanical energy than by the direct current. The principle of his rotary field motor is in use at Niagara Falls for transmitting power to near-by cities.

Tesla invented a wonderful little turbine on a new mechanical principle. In it steam goes

around in special circuits several times instead of once, as in the old-style engine, thus conserving much energy that otherwise would be lost. Its normal speed is about nine thousand revolutions to the minute. Inside the casings of the engine there are simple disks of steel mounted on the shaft. The steam, entering at the periphery, follows a spiral path toward the center, where openings are provided through which it exhausts. As the disks rotate and the speed increases, the path of the steam lengthens until it completes a number of turns before reaching the outlet, and it is working all the time. This method has the advantage of simplicity, and of being comparatively inexpensive to construct, with nothing to get out of order. Tesla has embodied the principle in a variety of machines, such as gas and steam turbines, pumps, air-compressors, hot-air engines. It is capable of developing ten horse-power from each pound of weight.

Tesla has also produced a fountain in which remarkable results are obtained with very little water. A shaft runs vertically through the central column of the fountain, carrying at its lower end a propeller, and at its upper end an electric motor. As the propeller is made to revolve the water is sucked in by the propeller blades through inlets at the bottom of the tube in which the pro-

peller is contained, and is urged upward. As the circulation is extremely rapid, the total quantity of water required is comparatively small; about one-tenth of that delivered per minute is generally sufficient. A great mass of water is propelled by the movements of such power as is required to lift it from its normal level to the height from which it descends in cascades.

Tesla has done much to develop a wireless system which differs basically from that of Marconi. He has invented a system of transmission of power without wires, and the transmission of energy through a single wire without return. Many of his discoveries have been of scientific and practical value to the world; others, such as a transcontinental and transoceanic wireless telephone, and the transmission of pictures by the ordinary telegraph method, have not yet been proved practical. He dreams also of one day making it possible for us to communicate with other planets. As one of his grandfathers lived to be one hundred and ten years old, and the other was over one hundred, Nikola considers that he may yet do wonderful things in invention and discovery.